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Citation for published version:

Crow, J 2019, 'The imagined water supply of Byzantine Constantinople, new approaches', *Travaux et Mémoires*, vol. 22, no. 1, pp. 211-235.

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Publisher's PDF, also known as Version of record

Published In:

Travaux et Mémoires

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CONSTANTINOPLÉ
RÉELLE ET IMAGINAIRE

AUTOUR DE L'ŒUVRE
DE GILBERT DAGRON

ORIENT ET MÉDITERRANÉE (UMR 8167) / MONDE BYZANTIN
COLLÈGE DE FRANCE / INSTITUT D'ÉTUDES BYZANTINES

TRAVAUX ET MÉMOIRES

– publication annuelle paraissant en un ou deux fascicules –

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ISBN 978-2-916716-65-7

ISSN 0577-1471

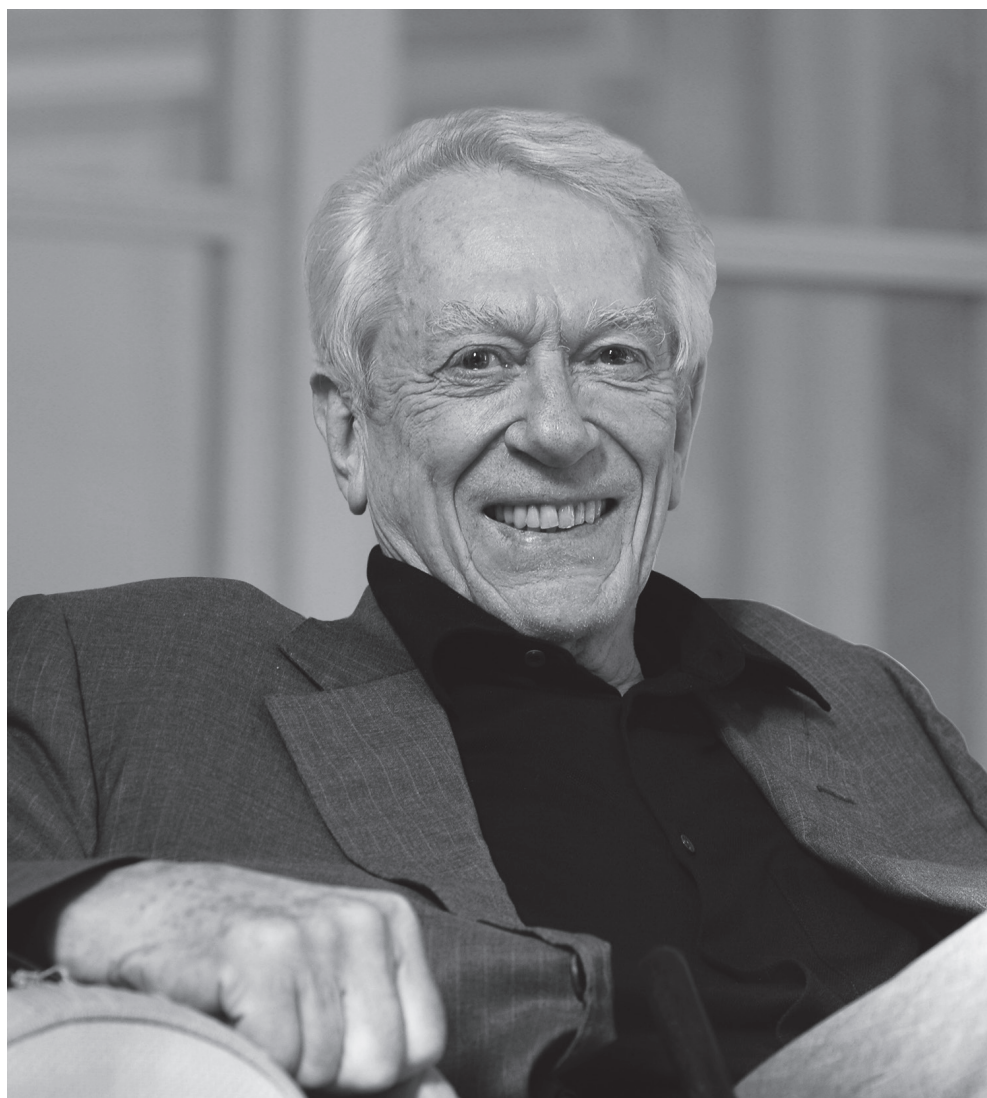
COLLÈGE DE FRANCE – CNRS
CENTRE DE RECHERCHE D'HISTOIRE
ET CIVILISATION DE BYZANCE

TRAVAUX ET MÉMOIRES
22/1

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*Ouvrage publié avec le concours
du Collège de France*



Gilbert Dagron, Paris, 4 mars 2007, © C. Hélie

ABRÉVIATIONS

- AASS* *Acta sanctorum quotquot toto orbe coluntur, vel a catholicis scriptoribus celebrantur quae ex latinis et graecis, aliarumque gentium antiquis monumentis, collegit, digessit, notis illustravit J. Bollandus, operam et studium contulit G. Henschenius, Antuerpiae – Bruxellis 1643-1940.*
- ACO* *Acta conciliorum oecumenicorum*, ed. instituit E. Schwartz, continuavit J. Straub, Berlin 1914-1940.
- ACO, ser. sec.* *Acta conciliorum oecumenicorum. Series secunda*, Berlin 1984-.
- Agathias* *Agathiae Myrinaei historiarum libri quinque*, rec. R. Keydell (CFHB 2), Berolini 1967.
- Agathias, Histoires : guerres et malheurs du temps sous Justinien*, introd., trad. et notes par P. Maraval, Paris 2007.
- AE* *L'année épigraphique*. Paris.
- AJA* *American journal of archaeology*. Boston Mass.
- AnBoll* *Analecta Bollandiana*. Bruxelles.
- Annae Comnenae Alexias* *Annae Comnenae Alexias*, rec. D. R. Reinsch et A. Kambylis (CFHB 40), Berolini 2001.
- Anne Comnène, Alexiade* *Anne Comnène, Alexiade, règne de l'empereur Alexis I Comnène (1081-1118)*, texte établi et trad. par B. Leib (Collection byzantine), 4 vol., Paris 1937-1976.
- AnTard* *Antiquité tardive*. Turnhout.
- AOC* Archives de l'Orient chrétien. Paris.
- Basilica* *Basilicorum libri LX. Series A, Textus, vol. 1-8; Series B, Scholia, vol. 1-9*, ed. H. J. Scheltema et N. Van der Wal, Groningen 1953-1988.
- BCH* *Bulletin de correspondance hellénique*. Paris.

- BERGER, *Patria* A. BERGER, *Untersuchungen zu den Patria Konstantinupoleos* (Ποικίλα Βυζαντινά 8), Bonn 1988.
- BGU *Aegyptische Urkunden aus den Königlichen (Staatlichen) Museen zu Berlin, Griechische Urkunden.* Berlin.
- BHG, BHG³ *Bibliotheca hagiographica Graeca*, 3^e éd. mise à jour et considérablement augmentée, Bruxelles 1957.
- BIFAO *Bulletin de l'Institut français d'archéologie orientale.* Le Caire.
- BMGS *Byzantine and modern Greek studies.* Leeds.
- Bryennios, *Histoire* Nicéphore Bryennios, *Histoire = Nicephori Bryennii historiarum libri quattuor*, introd., texte, trad. et notes par P. Gautier (CFHB 9), Bruxelles 1975.
- BSL *Byzantinoslavica : revue internationale des études byzantines.* Praha.
- Bull. ép. Bulletin épigraphique de la *Revue des études grecques*.
- Byz. *Byzantion : revue internationale des études byzantines.* Wetteren.
- Byzantine Constantinople* *Byzantine Constantinople : monuments, topography and everyday life*, ed. by N. Necipoğlu (Medieval Mediterranean 33), Leyde – Boston – Köln 2001.
- Byz. Forsch. *Byzantinische Forschungen : internationale Zeitschrift für Byzantinistik.* Amsterdam.
- BZ *Byzantinische Zeitschrift.* Berlin.
- CArch *Cahiers archéologiques.* Paris.
- CCSG *Corpus christianorum. Series Graeca.* Turnhout.
- Cedrenus ed. Bekker : *Georgius Cedrenus Ioannis Scylitzae ope*, ab I. Bekkero suppletus et emendatus (CSHB 4), Bonnae 1838-1839.
ed. Tartaglia : *Georgii Cedreni Historiarum compendium*, ed. critica a cura di L. Tartaglia (Bollettino dei classici. Supplemento 30), Roma 2016.
- CEFR Collection de l'École française de Rome. Rome.
- CFHB *Corpus fontium historiae Byzantinae.*
- Chilandar 1 *Actes de Chilandar. 1, Des origines à 1319*, éd. diplomatique par M. Živojinović, V. Kravari, C. Giros (Archives de l'Athos 20), Paris 1995.
- Chron. Paschale *Chronicon Paschale*, rec. L. Dindorfius, Bonnae 1832.
Chronicon Paschale 284-628 AD, transl. with notes and introd. by M. Whitby & M. Whitby (Translated texts for historians 7), Liverpool 1989.
- CIL *Corpus inscriptionum Latinarum.* Berlin 1963-.

- CJ* *Corpus iuris ciuilis. 2, Codex Iustinianus*, rec. P. Krüger, Berlin 1877.
- Const. VII, *Three treatises* : Constantine Porphyrogenitus, *Three treatises on imperial military expeditions*, introd., ed., transl. and commentary by J. F. Haldon (CFHB 28), Wien 1990.
- CPG* *Clavis patrum Graecorum*. Turnhout 1974-2003.
- CRAI* *Comptes rendus. Académie des Inscriptions et Belles-Lettres*. Paris.
- CSCO* *Corpus scriptorum christianorum Orientalium*. Louvain.
- CSEL* *Corpus scriptorum ecclesiasticorum Latinorum*. Vindobonae 1866-.
- CSHB* *Corpus scriptorum historiae Byzantinae*. Bonn.
- CTh* *Codex Theodosianus*.
- CUF* *Collection des universités de France*. Paris.
- DACL* *Dictionnaire d'archéologie chrétienne et de liturgie*, publié par dom F. Cabrol et dom H. Leclercq, Paris 1924-1953.
- DAGRON, *Constantinople imaginaire* G. DAGRON, *Constantinople imaginaire : études sur le recueil des Patria* (Bibliothèque byzantine. Études 8), Paris 1984.
- DAGRON, *Empereur et prêtre/Emperor and priest* G. DAGRON, *Empereur et prêtre : étude sur le « césaropapisme » byzantin* (Bibliothèque des histoires), Paris 1996. Trad. angl. : *Emperor and priest : the imperial office in Byzantium*, transl. by J. Birrell, Cambridge 2003.
- DAGRON, *L'Hippodrome* G. DAGRON, *L'Hippodrome de Constantinople : jeux, peuple et politique*, Paris 2011.
- DAGRON, *Idées byzantines* G. DAGRON, *Idées byzantines* (Bilans de recherche 8), Paris 2012, 2 vol.
- DAGRON, *Naissance d'une capitale* G. DAGRON, *Naissance d'une capitale : Constantinople et ses institutions de 330 à 451* (Bibliothèque byzantine 7), Paris 1974, 2^e éd. 1984.
- DAI* Constantine Porphyrogenitus, *De administrando imperio*, Greek text ed. by Gy. Moravcsik; English transl. by R. J. H. Jenkins (CFHB 1), Washington DC 1967²; 2, *Commentary*, ed. by R. J. H. Jenkins, London 1962.
- DChAE* *Δελτίον τῆς Χριστιανικῆς ἀρχαιολογικῆς ἐταιρείας*. Athènes.
- De cer.* ed. Reiske *Constantini Porphyrogeniti imperatoris De cerimoniis aulae Byzantinae libri duo*, e rec. J. J. Reiskii (CSHB), Bonnae 1829-1830.
ed. Vogt Constantin VII Porphyrogénète, *Le Livre des cérémonies. 1, Texte. 1, Livre I, chapitres 1-46 (37); 2, Livre I, chapitres 47 (38)-92 (83)*, établi et trad. par A. Vogt, Paris 1935-1939 (2^e tirage, Paris 1967).

- trad. Moffatt & Tall Constantine Porphyrogenetos, *The Book of ceremonies in two volumes*, transl. by A. Moffatt & M. Tall, with the Greek edition of the *Corpus Scriptorum Historiae Byzantinae* (Bonn, 1829) (Byzantina Australiensia 18), Canberra 2012.
- Diegesis* Διήγησις περὶ τῆς οἰκοδομῆς τῆς μεγάλης ἐκκλησίας τῆς ἐπονομαζομένης ἀγίας Σοφίας, dans *Scriptores originum Constantinopolitanarum*. 1, rec. Th. Preger (Teubner), Lipsiae 1901, p. 74-108.
- Dig.* *Corpus iuris ciuilis*. 1, *Digesta*, rec. Th. Mommsen, retractavit P. Krüger, Berolini 1908.
- DOC* 4, 1 et 2 M. HENDY, *Catalogue of the Byzantine coins in the Dumbarton Oaks collection and in the Whittemore collection*. 4, *Alexius I to Michael VIII, 1081-1261*. 1, *Alexius I to Alexius V (1081-1204)*; 2, *The emperors of Nicaea and their contemporaries (1204-1261)*, Washington DC 1999.
- DOP* *Dumbarton Oaks papers*. Washington.
- DOS* Dumbarton Oaks studies. Cambridge Mass.
- DOSeals* 1-6 *Catalogue of Byzantine seals at Dumbarton Oaks and in the Fogg Museum of Art*. 1, *Italy, North of the Balkans, North of the Black Sea*, ed. by J. Nesbitt and N. Oikonomides, Washington DC 1991; 2, *South of the Balkans, the Islands, South of Asia Minor*, ed. by J. Nesbitt and N. Oikonomides, Washington DC 1994; 3, *West, Northwest, and Central Asia Minor and the Orient*, ed. by J. Nesbitt and N. Oikonomides, Washington DC 1996; 4, *The East*, ed. by E. McGeer, J. Nesbitt and N. Oikonomides, Washington DC 2001.
- Edicta* *Corpus iuris ciuilis*. 3, *Nouellae*, rec. R. Schoell, absoluit G. Kroll, Berolini 1895 (repr. Hildesheim 1993, 2005), p. 759-795.
- EEBS* Ἐπετηρὶς Ἑταιρείας Βυζαντινῶν σπουδῶν. Ἀθήνα.
- EHB* *The economic history of Byzantium : from the seventh through the fifteenth century*, A. E. Laiou, ed.-in-chief (DOS 39), Washington DC 2002.
- EI* *Encyclopédie de l'Islam*, Leiden – Paris 1913-1938.
- ÉO* *Échos d'Orient : revue d'histoire, de géographie et de liturgie orientales*. Bucarest.
- ΕΦΣ* Ἑλληνικὸς Φιλολογικὸς Σύλλογος Κωνσταντινουπόλεως.
- FM* 1-12 *Fontes minores*, hrsg. von D. Simon (Forschungen zur byzantinischen Rechtsgeschichte), Frankfurt am Main 1976-.
- GCS* Die griechischen christlichen Schriftsteller. Leipzig – Berlin.
- Georg. Mon.* *Georgii Monachi Chronicon*, ed. C. de Boor, corr. P. Wirth, Stutgardiae 1978.
- GRBS* *Greek, Roman and Byzantine studies*. Durham.

- Hesychios, *Patria Πάτρια Κωνσταντινουπόλεως κατά Ήσύχιον Ἰλλούστριον*, dans *Scriptores originum Constantinopolitanarum*. 1, rec. Th. Preger (Teubner), Lipsiae 1901, p. 1-18.
- Hippodrom/Atmeydanı Hippodrom/Atmeydanı : a stage for Istanbul's history*, ed. by B. Pitarakis, Istanbul 2010.
- IGLS* *Inscriptions grecques et latines de la Syrie*, Beyrouth – Paris 1929-.
- ILS* *Inscriptiones latinae selectae*, ed. H. Dessau, Berolini 1892-1916.
- IRAIK* *Известия Русского археологического института в Константинополе*. Одесса, София.
- IstMitt* *Istanbuler Mitteilungen*. Istanbul – Tübingen.
- Iviron* 1, 2, 4 *Actes d'Iviron*. 1, *Des origines au milieu du XI^e siècle*, éd. diplomatique par J. Lefort, N. Oikonomidès, D. Papachryssanthou, avec la collab. de H. Métrévélī (Archives de l'Athos 14), Paris 1985.
- Actes d'Iviron*. 2, *Du milieu du XII^e siècle à 1204*, éd. diplomatique par J. Lefort, N. Oikonomidès, D. Papachryssanthou, avec la collab. de V. Kravari et de H. Métrévélī (Archives de l'Athos 16), Paris 1990.
- Actes d'Iviron*. 4, *De 1328 au début du XVI^e siècle*, éd. diplomatique par J. Lefort, N. Oikonomidès, D. Papachryssanthou, V. Kravari, avec la collab. de H. Métrévélī (Archives de l'Athos 19), Paris 1995.
- JANIN, *Constantinople byzantine* R. JANIN, *Constantinople byzantine : développement urbain et répertoire topographique* (AOC 4A), 2^e éd., Paris 1964.
- JANIN, *Géographie* 1, 3 R. JANIN, *La géographie ecclésiastique de l'Empire byzantin*. 1, *Le siège de Constantinople et le patriarcat œcuménique*. 3, *Les églises et les monastères*, Paris 1953, 1969².
- Géographie* 2 R. JANIN, *La géographie ecclésiastique de l'Empire byzantin*. 2, *Les églises et les monastères des grands centres byzantins : Bithynie, Hellespont, Latros, Galèsios, Trébizonde, Athènes, Thessalonique*, Paris 1975.
- Jean le Lydien, *Des magistratures de l'État romain*, texte établi, trad. et commenté par M. Dubuisson & J. Schamp (CUF), Paris 2006.
- Johannes Lydus, *On powers or the magistracies of the Roman state*, introd., crit. text, transl., commentary, and indices by A. C. Bandy, Philadelphia 1983.
- Ioannis Lydi De magistratibus populi Romani libri tres*, ed. R. Wünsch (Teubner), Lipsiae 1903.
- JGR* *Jus Graecoromanum*, cur. J. et P. Zepos, Athenis 1931, réimpr. Aalen 1962.
- JHS* *The journal of Hellenic studies*. London.
- JÖB* *Jahrbuch der österreichischen Byzantinistik*. Wien.

- JÖBG *Jahrbuch der österreichischen byzantinischen Gesellschaft*. Wien.
- JORDANOV, *Corpus* 1, 2, 3 I. JORDANOV, *Corpus of Byzantine seals from Bulgaria*. 1, *Byzantine seals with geographical names*, Sofia 2003; 2, *Byzantine seals with family names*, Sofia 2006; 3, Sofia 2009.
- JRA *Journal of Roman archaeology*. Portsmouth RI.
- JRS *The journal of Roman studies*. London.
- LAMPE *Greek patristic lexicon*, ed. by G. W. H. Lampe, Oxford 1961.
- Lavra 1, 3 *Actes de Lavra*. 1, *Des origines à 1204*, éd. diplomatique par P. Lemerle, A. Guillou, N. Svoronos, avec la collab. de D. Papachryssanthou (Archives de l'Athos 5), Paris 1970.
Actes de Lavra. 3, *De 1329 à 1500*, éd. diplomatique par P. Lemerle, A. Guillou, N. Svoronos, D. Papachryssanthou (Archives de l'Athos 10), Paris 1979.
- Leo Diaconus *Leonis Diaconi caloensis Historiae libri decem; Liber de velitatione bellica Nicephori Augusti*, e rec. C. B. Hasii; accedunt *Theodosii acroases de Creta capta*, e rec. F. Jacobsii et *Luitprandi legatio cum aliis libellis qui Nicephori Phocae et Joannis Tzimiscius Historiam illustrent* (CSHB 11), Bonnae 1828.
- Léon le Diacre, *Empereurs du x^e siècle*, présentation, trad. et notes par R. Bondoux et J.-P. Grémois (MTM 40), Paris 2014.
- Libanii Opera. 1-12, rec. R. Foerster, Lipsiae 1903-1923.
- LP *Le Liber pontificalis*, texte, introd. et commentaire par L. Duchesne, 2 vol., Paris 1886 et 1892; III avec additions et corrections de L. Duchesne, C. Vogel éd., Paris 1955-1957.
- LSJ (& Rev. suppl.) *A Greek-English lexicon with a revised supplement*, comp. by H. G. Liddell & R. Scott, rev. and augm. throughout by H. S. Jones, Oxford 1996.
- MAGDALINO, *Constantinople médiévale* P. MAGDALINO, *Constantinople médiévale : étude sur l'évolution des structures urbaines* (MTM 9), Paris 1996.
- Malalas *Ioannis Malalae Chronographia*, rec. I. Thurn (CFHB 35), Berolini 2000.
The Chronicle of John Malalas, a transl. by E. Jeffreys, M. Jeffreys & R. Scott (Byzantina Australiensia 4), Melbourne 1986.
- MAMA *Monumenta Asiae Minoris antiqua*. 1928-.
- MANGO, *Brazen House* C. MANGO, *The Brazen House : a study of the vestibule of the imperial palace of Constantinople* (Arkaeologisk-kunsthistoriske meddelelser 4, 4), København 1959.
- MANGO, *Développement urbain* C. MANGO, *Le développement urbain de Constantinople (iv^e-vii^e siècles)* (MTM 2), Paris 1985, réimpr. avec addenda en 1990 et 2004.

- MANSI *Sacrorum conciliorum nova et amplissima collectio*, J. D. Mansi evulgavit, Florentiae – Venetiis 1759-1798 [réimpr. Paris 1901 et Graz 1960].
- MEFR *Mélanges de l'École française de Rome*. Rome.
- MEFRM *Mélanges de l'École française de Rome. Moyen Âge*. Rome – Paris.
- MGH Monumenta Germaniae historica. Berlin. AA : Auctores antiquissimi. Ep. : Epistolae. SS : Scriptores. SS rer. Germ. : Scriptores rerum Germanicarum.
- Michael Attaleiates, *The history*, transl. by A. Kaldellis and D. Krallis (Dumbarton Oaks medieval library 16), Cambridge – London 2012.
- Michel Psellos, *Chronographie* Michel Psellos, *Chronographie ou Histoire d'un siècle de Byzance : (976-1077)*, texte établi et trad. par É. Renauld (Les Belles Lettres. Collection byzantine), Paris 1926-1928.
- Michaelis Pselli Chronographia* *Michaelis Pselli Chronographia*, hrsg. von D. R. Reinsch (Millennium Studien 51), Berlin – Boston 2014.
- Michel le Syrien *Chronique de Michel le Syrien, patriarche jacobite d'Antioche (1166-1199)*, éd. et trad. par J.-B. Chabot, 1, *Traduction livres I-VII*; 2, *Traduction livres VIII-XI*; 3, *Traduction livres XII-XXI*; 4, *Texte syriaque*, Paris 1899–1924 (réimpr. Bruxelles 1963).
- MTM Monographies de *Travaux & mémoires*. Paris.
- MÜLLER-WIENER, *Bildlexikon* W. MÜLLER-WIENER, *Bildlexikon zur Topographie Istanbul : Byzantion-Konstantinupolis-Istanbul bis zum Beginn des 17. Jahrhunderts*, Tübingen 1977.
- Niceph., *Breviarium* = Ἱστορία σύντομος Nikephoros, patriarch of Constantinople, *Short history*, text, transl. and commentary by C. Mango (CFHB 13), Washington DC 1990.
- Nicete Choniatae Historia*, rec. I. A. van Dieten (CFHB 11), Berolini – Novi Eboraci 1975.
- Notitia urbis Constantinopolitanae* *Notitia dignitatum, accedunt Notitia urbis Constantinopolitanae et laterculi prouinciarum*, ed. O. Seeck, Berolini 1876.
- Nov.* *Corpus iuris ciuilis. 3, Nouellae*, rec. R. Schoell, absoluit G. Kroll, Berolini 1895 (repr. Hildesheim 1993, 2005). p. 759-795
- OCA Orientalia Christiana analecta. Roma.
- OCP *Orientalia Christiana periodica : commentarii de re orientali aetatis christianae sacra et profana*. Roma.
- ODB *Oxford dictionary of Byzantium*, A. P. Kazhdan ed. in chief, New York 1991.

- OIKONOMIDÈS, *Listes* N. OIKONOMIDÈS, *Les listes de préséance byzantines des IX^e et X^e siècles : introduction, texte, traduction et commentaire* (Le monde byzantin 4), Paris 1972.
- Origines Constantinopolitanae Scriptores originum Constantinopolitanarum*, rec. Th. Preger (Teubner), Lipsiae 1901-1907.
- Pantéléemôn* *Actes de Saint-Pantéléemôn*, éd. diplomatique par P. Lemerle, G. Dagron, S. Ćircović (Archives de l'Athos 12), Paris 1982.
- Parastaseis* Παραστάσεις σύντομοι χρονικά, dans *Scriptores originum Constantinopolitanarum*. 1, rec. Th. Preger (Teubner), Lipsiae 1901, p. 19-73.
Constantinople in the early eighth century : the Parastaseis syntomoi chronikai, introd., transl. & commentary, ed. by Av. Cameron & J. Herrin (Columbia studies in the classical tradition 10), Leiden 1984.
- Patmos* 1 Βυζαντινὰ ἔγγραφα τῆς μονῆς Πάτμου. Α΄, Αὐτοκρατορικά, γενική εισαγωγή, ευρετήρια, πίνακες ὑπὸ Ε. Λ. Βρανούση [ed. E. L. Vranousse] (Εθνικό Ἰδρυμα ερευνών. Κέντρο Βυζαντινῶν ερευνών), Αθήνα 1980.
- Patria* Πάτρια Κωνσταντινουπόλεως, dans *Scriptores originum Constantinopolitanarum*. 2, Ps.-Codini *Origines continens*, rec. Th. Preger (Teubner), Lipsiae 1907.
 trad. : *Accounts of medieval Constantinople : Scriptores originum Constantinopolitanarum : the Patria*, transl. by A. Berger (Dumbarton Oaks medieval library 24), Cambridge Mass. – London 2013, p. 23-227 et 270-279.
- PBW* M. JEFFREYS *et al.*, *Prosopography of the Byzantine world*, <<http://pbw.kcl.ac.uk>>
- Peira* Πείρα ἡγουν διδασκαλία ἐκ τῶν πράξεων τοῦ μεγάλου κυροῦ Εὐσταθίου τοῦ Ῥωμαιοῦ = JGR. 4, *Practica ex actis Eustathii Romani : epitome legum*, ex ed. C. E. Zachariae a Lingenthal, ἐπιμ. Ἰ. Δ. Ζέπου, Athenis 1931, réimpr. Aalen 1962.
- PG* *Patrologiae cursus completus. Series graeca*, accur. J.-P. Migne, Paris 1856-1866.
- Photius, *Bibliothèque*. 2, *Codices* 84-185; 3, *Codices* 186-222, texte établi et trad. par R. Henry, Paris 1960, 1962.
- Pierre Gilles, *Itinéraires byzantins*, introd., trad. du latin et notes par J.-P. Grégois (MTM 28), Paris 2007.
- PL* *Patrologiae cursus completus. Series latina*, accur. J.-P. Migne, Paris 1844-1865.
- PLRE* *The prosopography of the later Roman Empire*, by A. H. M. Jones, J. R. Martindale & J. Morris, Cambridge 1971-1992.
- PmbZ* *Prosopographie der mittelbyzantinischen Zeit*, nach Vorarbeiten F. Winkelmanns erstellt von R.-J. Lilie *et al.*, Berlin 1998-2000.
- PO* *Patrologia Orientalis*. Paris.

- Procopius, *De aed. Procopii Caesariensis opera omnia. 4, De aedificiis libri VI*, rec. J. Haury, addenda et corrigenda adjecit G. Wirth (Teubner), Leipzig 1964².
- Procopius, *De bello Gothico Procopii Caesariensis opera omnia. 2, De bellis libri V-VIII*, rec. J. Haury, addenda et corrigenda adjecit G. Wirth (Teubner), Leipzig 1963².
- Procopius, *De bello Persico Procopii Caesariensis opera omnia. 1, De bellis libri I-IV*, rec. J. Haury, addenda et corrigenda adjecit G. Wirth (Teubner), Leipzig 1962², p. 4-304.
- Procopius, *De bello Vandalico Procopii Caesariensis opera omnia. 1, De bellis libri I-IV*, rec. J. Haury, addenda et corrigenda adjecit G. Wirth (Teubner), Leipzig 1962², p. 307-552.
- Procopius, *Historia arcana Procopii Caesariensis opera omnia. 3, Historia quae dicitur arcana*, rec. J. Haury, addenda et corrigenda adjecit G. Wirth (Teubner), Leipzig 1963².
Procopée de Césarée, *Histoire secrète*, trad. et comment. par P. Maraval, Paris 1990.
- Prôtaton* *Actes du Prôtaton*, éd. diplomatique par D. Papachryssanthou (Archives de l'Athos 7), Paris 1975.
- Pseudo-Zachariah Rhetor The Chronicle of Pseudo-Zachariah Rhetor : church and war in late antiquity*, ed. by G. Greatrex and transl. from Syriac and Arabic sources by R. R. Phenix & C. B. Horn (Translated texts for historians 55), Liverpool 2011.
- RAC* *Rivista di archeologia cristiana*. Città del Vaticano.
- RALLÈS & POTLÈS 1-6* *Σύνταγμα τῶν θείων καὶ ἱερῶν κανόνων*, ὑπὸ Γ. Α. Παλλῆ καὶ Μ. Ποτλῆ, ἐν Ἀθῆναις 1852-1859.
- RE* *Paulys Realencyclopädie der classischen Altertumswissenschaft*, Stuttgart – München 1894-1997.
- REArm* *Revue des études arméniennes*. Paris.
- REB* *Revue des études byzantines*. Paris.
- REG* *Revue des études grecques*. Paris.
- Regesten 1-2* F. DÖLGER & P. WIRTH, *Regesten der Kaiserurkunden des oströmischen Reiches von 565-1453. 1, Regesten von 565-1025; 2, Regesten von 1025-1204*, zweite, erweiterte und verbesserte Auflage, München 1960-1995.
- Regesten 476-565* *Regesten der Kaiserurkunden des oströmischen Reiches von 476 bis 565*, bearb. von T. Lounghis, B. Blysidu, St. Lampakes, Nicosia 2005.
- Regestes 2-3* V. GRUMEL, *Les registres des actes du patriarcat de Constantinople. 1, Les actes des patriarches. 2-3, Les registres de 715 à 1206*, 2^e éd. revue et corrigée par J. Darrouzès, Paris 1989.

- RN* *Revue numismatique*. Paris.
- ROC* *Revue de l'Orient chrétien*. Paris.
- RSBN* *Rivista di studi bizantini e neoellenici*. Roma.
- SB* *Sammelbuch griechischer Urkunden aus Ägypten*. Wiesbaden 1913-.
- SBS* *Studies in Byzantine sigillography*.
- SC* Sources chrétiennes. Paris.
- Scylitzes *Ioannis Scylitzae Synopsis historiarum*, rec. I. Thurn (CFHB. Series Berolinensis 5), Berlin – New York 1973.
- Scylitzes continuatus dans Georgius Cedrenus : *Georgius Cedrenus Ioannis Scylitzae ope*, ab I. Bekkero suppletus et emendatus (CSHB 4), Bonn 1838-1839, vol. 2, p. 641-744.
- Scylitzes continuatus *Ἡ συνέχεια τῆς Χρονογραφίας τοῦ Ἰωάννου Σκυλίτση (Ioannes Skylitzes continuatus)*, εκδ. Ε. Θ. Τσολάκης [E. Th. Tsolakis] (Ἰδρυμα μελετῶν Χερσονήσου τοῦ Αἵμου 105), Θεσσαλονίκη 1968.
- SEG* *Supplementum epigraphicum Graecum*.
- Skylitzès, *Empereurs* Jean Skylitzès, *Empereurs de Constantinople*, texte trad. par B. Flusin et annoté par J.-C. Cheynet (Réalités byzantines 8), Paris 2003.
- Socrate de Constantinople, *Histoire ecclésiastique*/Sokrates, *Kirchengeschichte* Sokrates, *Kirchengeschichte*, hrsg. von G. Ch. Hansen (GCS 1), Berlin 1995.
- Socrate de Constantinople, *Histoire ecclésiastique*, texte grec de l'éd. G. C. Hansen, trad. par P. Périchon & P. Maraval (SC 470, 493, 505, 506), Paris 2004-2007.
- Souda* *Suidae Lexicon*, ed. A. Adler (Lexicographi Graeci recogniti et apparatu critico instructi 1), Lipsiae, 1928-1938.
- Sozomène, *Histoire ecclésiastique*/Sozomenus, *Kirchengeschichte* Sozomenus, *Kirchengeschichte*, hrsg. von J. Bidez, einleit., zum Druck besorgt und mit Registern versehen von G. C. Hansen (GCS 50), Berlin 1960.
- Sozomène, *Histoire ecclésiastique. Livres I-II; Livres III-IV; Livres V-VI; Livres VII-IX*, texte grec de l'éd. J. Bidez, G. C. Hansen, introd. par B. Grillet et G. Sabbah, trad. par A.-J. Festugière revue par B. Grillet (SC 306, 418, 495, 516), Paris 1983, 1996, 2005, 2008.
- StT* Studi e testi. Biblioteca Apostolica Vaticana, Città del Vaticano.
- Symeon Magister, *Chronicon Symeonis Magistri et Logothetae Chronicon*, rec. S. Wahlgren (CFHB 44, 1), Berolini – Novi Eboraci 2006.

- Syn. CP* *Synaxarium Ecclesiae Constantinopolitanae e codice Sirmondiano nunc Berolinensi, adiectis synaxariis selectis : Propylaeum ad Acta sanctorum Novembris*, opera et studio H. Delehay, Bruxelles 1902.
- Teubner *Bibliotheca scriptorum Graecorum et Romanorum Teubneriana*.
- Themistius, *Orationes Themistii orationes quae supersunt. 1-3*, rec. H. Schenkl, opus consumavit G. Downey (Teubner), Lipsiae 1965-1974.
- Theophanis Chronographia*
Theophanis Chronographia, rec. C. de Boor (Teubner), Lipsiae 1883-1885 [réimpr. Hildesheim – New York 1980].
The Chronicle of Theophanes Confessor : Byzantine and Near Eastern history AD 284–813, transl. with introd. and comment. by C. Mango and R. Scott with the assistance of G. Greatrex, Oxford 1997.
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 ed. Bekker *Theophanes continuatus, Ioannes Cameniata, Symeon Magister, Georgius Monachus*, ex rec. I. Bekkeri (CSHB 31), Bonnæ 1838.
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- Theoph. Sim. *Theophylacti Simocattae Historiae*, ed. C. de Boor, ed. correctiorem cur. P. Wirth, Stutgardiae 1972.
- TIB *Tabula Imperii Byzantini*. Wien.
 TIB 2 : F. HILD & M. RESTLE, *Kappadokien (Kappadokia, Charsianon, Sebasteia und Lykandos)*, Wien 1981.
 TIB 6 : P. SOUSTAL, *Thrakien (Thrakē, Rodopē und Haimimontos)*, Wien 1991.
 TIB 10 : J. KODER, *Aigaion Pelagos (die nördliche Ägäis)*, Wien 1998.
 TIB 12 : A. KÜLZER, *Ostthrakien (Euröpē)*, Wien 2008.
 TIB 13 : K. BELKE, *Bithynia und Hellespontos*, Wien 2018, sous presse.
- TLG *Thesaurus linguae Graecae*.
- TLG® *Thesaurus linguae Graecae Digital Library*, project director M. C. Pantelia, University of California, Irvine. <http://www.tlg.uci.edu>.
- TM *Travaux & mémoires*. Paris.
- Variorum CS *Variorum collected studies series*. London – Aldershot.
- Vatopédi 1* *Actes de Vatopédi. 1, Des origines à 1329*, éd. diplomatique par J. Bompaire, J. Lefort, V. Kravari, C. Giros (Archives de l'Athos 21), Paris 2001.

- VV *Византийский временник*. Москва.
- Water supply J. CROW, J. BARDILL & R. BAYLISS, *The water supply of Byzantine Constantinople*, (Journal of Roman studies. Monograph series 11), London 2008.
- WBS Wiener byzantinistische Studien. Wien.
- Xénophon *Actes de Xénophon*, éd. diplomatique par D. Papachryssanthou (Archives de l'Athos 15), Paris 1986.
- ZACOS & VEGLERY G. ZACOS & A. VEGLERY, *Byzantine lead seals. 1*, Basel 1972.
- ZACOS 2 G. ZACOS, *Byzantine lead seals. 2*, compiled and ed. by J. W. Nesbitt, Berne 1984-1985.
- Zosime Zosime, *Histoire nouvelle*, texte établi et trad. par F. Paschoud : 1, *Livres I-II*, Paris 1971 (nouvelle éd. 2000) ; 2, 1, *Livre III*, Paris 1979 ; 2, 2, *Livre IV*, Paris 1979.
- ZPE *Zeitschrift für Papyrologie und Epigraphik*. Bonn.
- ZRVI *Зборник радова Византолошког института*. Београд.

THE IMAGINED WATER SUPPLY OF BYZANTINE CONSTANTINOPLE, NEW APPROACHES

by James CROW

The introduction to *Naissance d'une capitale*, Gilbert Dagron's seminal study of the first 120 years of the great city's life, begins: "Il était une fois...", the common formula to commence a fairy tale, "once upon a time," thus in this simple almost child-like phrase Dagron reveals at once both the mythic character of so many of the city's writings, but also those decisions and investments demanded at that moment of the creation of such a great enterprise, in prosaic terms, the very process, step by step, for the initiation of the great city.¹ It is rarely possible to observe this process although recent excavations near Vezneciler Caddesi, as part of the construction of a new metro station revealed an ancient street and buildings. Below the street were visible not the structures and demolition created by urban renewal, rather an empty soil layer, unencumbered by building debris or cemeteries, presumably the very green-field sites outside Byzantium onto which the new city was set out. Also visible in this glimpse of that new "Arrival City,"² were the hydraulic infrastructures, the veins flowing beneath its streets, drains and more especially pipes.

This article develops from a current research project: "Engineering the Byzantine water supply: procurement, construction and operation," a transdisciplinary programme involving civil engineers, archaeologists and historians to realise many of the water features lost or concealed by the modern city of Istanbul and their expansion into its hinterland.³ It provides a preliminary outline of the new developments concerning our knowledge of the water channels course through the forests of Thrace and the latest estimates of the

1. DAGRON, *Naissance d'une capitale*, p. 7.

2. The term is borrowed from: D. SAUNDERS, *Arrival city : how the largest migration in history is reshaping our world*, London 2011, a contemporary account of the vibrant, but dislocated communities of incomers which fill our predominantly urban world.

3. The team comprised Professor Martin Crapper (Northumbria University), Professor James Crow, Dr. Francesca Ruggeri, Dr. Simon Smith, Dr. Riley Snyder, and Dr. Kate Ward (University of Edinburgh). We express our gratitude to the Leverhulme Trust for their financial support for this work under grant agreement RPG-2013-410.

water storage within the city. From these revised vital statistics for the growing city it is possible to ask more fundamental questions about the urban environment and what was available to supply the city. Once delivered how were the waters collected, stored and distributed, and what insights can professional engineers supply to urban historians and archaeologists. In addition as part of the description of the system and its history, there will also be reference to revisions and new interpretations since the publication of our monograph a decade ago.⁴

By the mid-6th century AD there is little question that Constantinople was the largest city in the Roman world, comparable only with great urban centres in China and perhaps Mesoamerica. In size, it outstripped its rivals around the shores of the Mediterranean: Alexandria, Carthage, Antioch and old Rome. Constructing a new water supply system for a city with the ambitions to be the New Rome was a great challenge, but only one of a number of massive new urban infrastructure projects which for the most part were largely completed between 330 and 450. Little is known of either the urban or extra mural landscapes of the pre-Constantinian city of Byzantium. What is clear is that the new undertaking required a massive investment in earth moving, evidenced by the terraces recorded across the city,⁵ many of which came to be associated with the location of later Byzantine cisterns. The sculpted hills provided a setting for the colonnaded streets and piazzas which emerged over the first century of the city's expansion and with them the new town houses and insula blocks, together with the great civic buildings, baths, harbours and palaces which are recorded in the early fifth-century *Notitia Urbis* of ca. 425, our best single source for the topography and infrastructures of the city. The new developments situated on the higher ground set out towards the Constantinian and then Theodosian walls, enclosing an urban area which by the early 5th century a total area of 7.9 km sq.⁶

The land and sea walls defined the urban environment of the city, beyond were suburban estates, farms and forests. Extending westwards into Thrace and bounded by the Black Sea, the north part of this region remains quite densely forested despite the predations of recent developments such as the new airport, north-west of Istanbul and the link roads for the two most recent Bosphorus bridges. These forested Strandja hills continue west towards the modern border with Bulgaria and were the catchments for the new water supply systems surveyed and constructed in the 4th and 5th centuries. In

4. *Water supply*; see also C. MANGO, The water supply of Constantinople, in *Constantinople and its hinterland: papers from the twenty-seventh Spring symposium of Byzantine studies, Oxford, April 1993*, ed. by C. Mango & G. Dagron, Aldershot 1995, pp. 9–18.

5. Terraces has received little attention, see J. CROW, The infrastructures of a great city: earth, walls and water in late antique Constantinople, in *Technology in transition: AD 300–650*, ed. by L. Lavan, E. Zanini & A. Sarantis (Late antique archaeology 4), Leiden 2007, pp. 251–85; *Constantinople: archaeology of a Byzantine megapolis: final report on the Istanbul rescue archaeology project 1998–2004*, dir. by K. Dark & F. Özgümiş, Oxford 2013, pp. 24–5.

6. See the recent translation and commentary by J. MATTHEWS, The *Notitia Urbis Constantinopolitanae*, in *Two Romes: from Rome to Constantinople*, ed. by L. Grig & G. Kelly, New York 2012, pp. 81–115; P. MAGDALINO, Neighbourhoods in Byzantine Constantinople, in *Hinter den Mauern, und auf dem offenen Land: Leben im byzantinischen Reich*, F. Daim, J. Drauschke (Hrsg.), Mainz 2016, pp. 23–30; B. ANDERSON, Social clustering in 5th-c. Constantinople: the evidence of the *Notitia*, *JRA* 29, 2016, pp. 494–508; the estimate of area is from Kate WARD's recent doctoral research, *An engineering exploration of the water supply system of Constantinople*, PhD, University of Edinburgh 2018.

addition they will also have provided an important resource of wood for building and for fuel, as they still do today. In the southern half the peninsula bordering the Sea of Marmara the land is lower and open, more suitable for cultivation and settlement, studded with farms and settlements.⁷ Because of a lack of archaeological field survey in advance of rapid urban developments over the past half century what cannot be demonstrated with any certainty is how far this region may have expanded during the life of the Byzantine city in response to increasing and changing demands for agricultural production as is demonstrable in the hinterland of Rome.⁸

According to Procopius in his first chapter of Justinian's *Buildings* water defined the city.⁹ But the waters he celebrates were the salt-water seas surrounding the peninsula. Marine trade ensured the city was fed from Egypt until the capture of Alexandria by the Sassanians in 619. Deprived of that source new sea borne resources came from other Byzantine territories, first from Sicily in the 7th and 8th centuries, and later from the Aegean coastlands and the Black Sea.¹⁰ But the seas around the city and in the Black Sea did not only facilitate trade and communication across an increasingly maritime focused empire, they could be harvested for rich shoals of fish throughout the year. Although many modern observers dwell on the potential for urban cultivation within the Theodosian circuit, as Gilbert Dagron observed in a deeply scholarly paper concerned with "Poissons, pêcheurs et poissonniers de Constantinople." By contrast Johannes Koder's "Fresh vegetables for a capital," in the same volume on *Constantinople and its hinterland* is more frequently cited.¹¹ Koder's study estimates the potential yield from the city's intramural zone and immediate hinterland, a reductionist approach which appeals to the contemporary concerns for intra-urban cultivation.¹² Dagron however utilized to great effect the early 20th-century work on Turkish fisheries of Karekin Devedjian, describing Istanbul as the great city of "le Bosphore poissonneux" and later more significantly he stressed the importance of how the abundance of fish could feed all classes in a teeming city, just as in modern Istanbul.¹³ Thus the sea provided not merely an incomparable communication hub and physical protection, but resources of protein to feed the urban population.

7. J. CROW & S. TURNER, Silivri and the Thracian hinterland of Istanbul : an historic landscape, *Anatolian studies* 59, 2009, pp. 167–81.

8. R. THOMAS & A. WILSON, Water supply for Roman farms in Latium and South Etruria, *Papers of the British School at Rome* 62, 1994, pp. 139–96.

9. See now the discussion in J. PICKETT, Water and empire in the *De aedificiis* of Procopius, *DOP* 71, 2017, pp. 95–125.

10. J. HALDON, *The empire that would not die : the paradox of eastern Roman survival*, Cambridge Mass 2016, figs. 6.2, 6.4.

11. J. KODER, Fresh vegetables for the capital, in *Constantinople and its hinterland* (quoted n. 4), pp. 49–56.

12. A recent example is S. BARTHEL & C. ISENDAHL, Urban gardens, agriculture, and water management : sources of resilience for long-term food security in cities, *Ecological economics* 86, 2013, pp. 224–34; see now, A. RICCI, The resilient landscape of the land walls of Constantinople and their surroundings, *DChAE* 39, 2018, pp. 125–37.

13. G. DAGRON, Poissons, pêcheurs et poissonniers de Constantinople, in *Constantinople and its hinterland* (quoted n. 4), pp. 57–76, see p. 57.

But as is so often the case in Procopius' writings praise for one attribute merely masks—but also highlight for the discerning reader—another greater weakness; in this instance his paean to the city's marine setting conceals one of Constantinople's critical deficits as a new urban centre with an expanding population: a deficit of abundant drinking water.¹⁴ Unlike Rome, the new city has neither the resources of a major river, access to groundwater through ample local springs and wells, or major springs within close proximity. It would appear that immediate local resources were adequate for the Greek colony of Byzantium. But the Roman city had greater demands and according to later texts, Hadrian constructed an aqueduct, although no trace survives in the city itself.¹⁵ This aqueduct was sourced a short distance from the city in the valley of the Alibey Dere (Kydaros River) (fig. 1) and from sources in the forest of Belgrade, later redeveloped as the major source for the Ottoman aqueducts constructed in the 16th century.¹⁶ But for Constantine's new city these sources were insufficient and within 7 years of his death, his son, Constantius II commissioned surveyors to identify new water sources for the growing city. A city, which the orator Themistius claimed now became "truly a city and no longer a mere sketch" and was like a beautiful woman bedecked with jewels but thirstier "than those who are dressed in rags."¹⁷ Thus began the story of what has been termed "the longest Roman water supply line,"¹⁸ one of the greatest achievements of Roman infrastructure engineering which was to remain an enduring resource for the city of Constantinople for the next eight centuries.

This article is primarily concerned to outline the latest research on the long-distance water supply of Constantinople, both the transmission of the water from its distant sources and the latest assessment of the distribution of water within the city. In turn, this new evidence is able to inform our understanding of water consumption and usage as well as wider issues of settlement history over the long course of the Byzantine city's life. In addition the study takes the opportunity to revise and add some new interpretations and insights concerning the history of the system since the publication of our monograph in 2008.¹⁹

OUTSIDE THE CITY (fig. 2)

Constantius' surveyors faced a daunting task, which would challenge modern engineers.²⁰ They identified two main group of springs, the first on the valley of the Karaman Dere, a river which flows north into Terkos Lake and the Black Sea (fig. 2). These springs around Danamandira, were supplemented by at least one other, and

14. MANGO, *Développement urbain*.

15. *Water supply*, pp. 10–4.

16. Pierre Gilles, *Itinéraires byzantins*, pp. 116–7.

17. Themistius, *Orationes* XI, 151a–152b quoted in *Water supply*, p. 224.

18. K. ÇEÇEN, *The longest Roman water supply line*, Istanbul 1996.

19. *Water supply*.

20. J. R. SNYDER, Building the longest water supply system : large-scale construction in Constantinople's hinterland, *İstanbul araştırmaları yillığı = Annual of Istanbul studies* 5, 2016, pp. 1–19; J. R. SNYDER, O. DILAVER, L. C. STEPHENSON, J. MACKIE & S. D. SMITH, Agent-based modelling and construction : reconstructing antiquity's largest infrastructure project, *Construction management and economics* 36, 6, 2017, pp. 313–27, for an analysis of the construction process of the Thracian system.

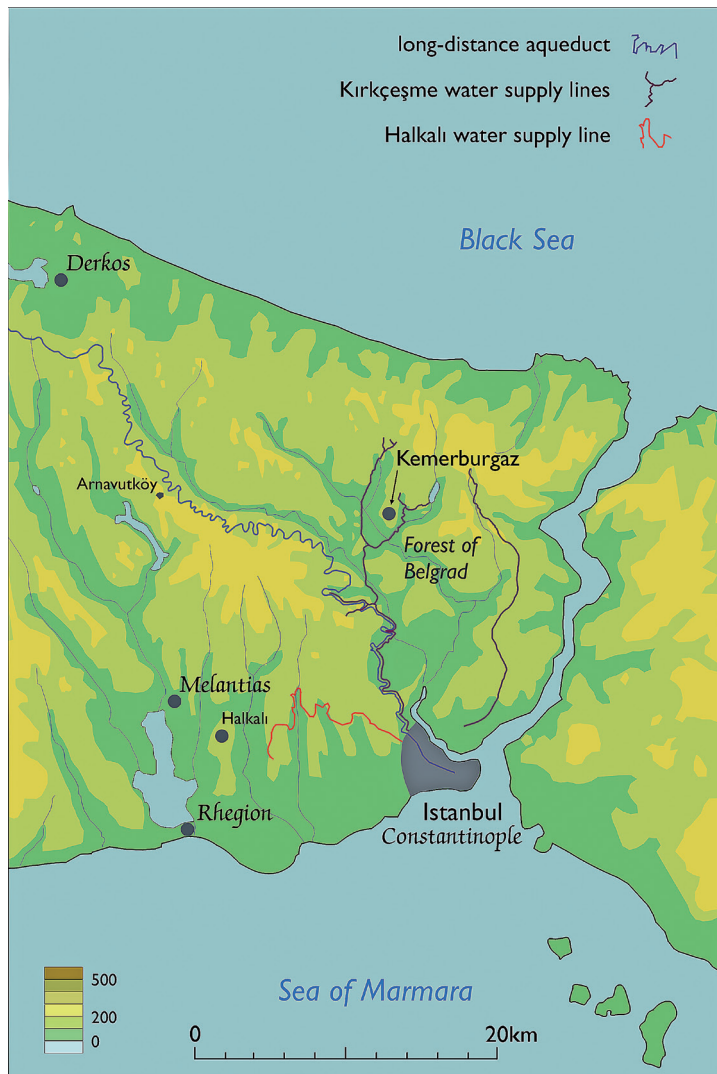


Fig. 1 – Map showing the aqueduct channels close to Constantinople including the Hadrianic line from the Belgrade Forest and the Halkalı line (drawn by Richard Bayliss).

provided a single long distance channel to the city. A second source was located to the east where three springs are known close to the village of Pınarca, on the far side of the north-south ridge occupied by the early 6th-century Anastasian Wall. These flow along the southern flank of the main ridge and eventually join the main line near Dağyenice, having passed through one long tunnel.²¹

21. *Water supply*, pp. 52–3; 75–80, maps 5, 6, 7.



Fig. 2 – Map showing the course of the long-distance aqueduct channels (drawn by Francesca Ruggeri).

The water channels are set into the hillsides and sinuously flow with the contours to allow gravity to pull the water towards its goal. Following a new study of the topography as part of the recent “Engineering the water supply of Byzantine Constantinople project,”²² the total length of this 4th-century line, constructed between ca. 345 and 373 has been recently recalculated based on ASTER satellite data to create a new terrain model of the region. The new distance can now be estimated with greater certainty, a total of 246 km: 205 km to Danamandır, plus 41 km for the line from Pınarca.²³ Nearly twice as long as any previous known Roman aqueduct. The first phase vaulted aqueduct channels are narrow, normally 1 m wide and 1.6 m in height and were cut into the hill side as they flowed towards the city. From Dağyenice the channel passed through another long tunnel at Tayyakadın and then followed the valley of the Alibey Dere towards the Golden Horn, few traces are known in this sector closer towards the city. Crucially this long-distance line from Thrace was able to enter the city close to the Edirne Kapı at an elevation of at least

22. See above n. 3.

23. F. RUGGERI, M. CRAPPER, J. R. SNYDER & J. CROW, A GIS based assessment of the Byzantine water supply system of Constantinople, *Water science and technology: water supply* 17, 6, 2017, pp. 1534–43.

63–64 m above sea level, that is over 30 m in elevation above the estimated Hadrianic line. The high-level waters flowed on across the aqueduct of Valens, the Bozdoğan Kemer, a 971 m long bridge between 4th and 3rd hills leading towards the great nymphaeum close to the Forum of Theodosius at Bayezit, which was constructed shortly after the completion of the aqueduct. By bringing this higher-level line the emperors were able to provide water for those new elevated areas of the city, beyond the boundary of Byzantium's walls and out towards the new parts of the city defined by the wall of Constantine.

The next phase of the long-distance line is less well documented. However a 6th-century author Hesychios's mythic account of the city records that the inhabitants of the city drew water from a nymph named Bizye, also the name of Thracian city, modern Vize.²⁴ But if there are limited texts the archaeological remains attest a massive programme of rebuilding and extension of the earlier line, over 160 km in a direct line from the city. In many places the new works are associated with broader channels up to 1.6 m in width and 2.00 high with larger more robust bridges. The line itself was extended westwards to capture springs at Ergene and beyond Vize at Pazarlı, with other possible sources near Binkılıç (now renamed as Fatih). The two systems ran in parallel after the new bridge at Ballıgerme, initially over 10 m difference in height, but gradually coming together towards the city. The new extension was 180 km in length, giving a total length of 426 km, excluding the channels of the Hadrianic line which seems to have been restored at about the same time.²⁵ The date of the new second-phase construction remains uncertain, it is possible the repairs were required after an earthquake in Thrace in 394 and certainly a number of earlier bridges were rebuilt in a much more monumental manner better able to withstand seismic damage, notably at Ballıgerme, Kuşunlugerme, Talas, Büyükgerme, Keçigerme and Kumarlıdere²⁶ (figs. 3–6). The city itself grew westwards with the new Theodosian Land walls completed by ca. 415. Only shortly afterwards the first of the three great open-air reservoirs of Aetius was completed in 421. Although there is no direct evidence it is difficult not to associate the completion of this new reservoir with the arrival of the new long distance water from Bizye, however, it would be a mistake to consider that the Land Walls were constructed to protect the open reservoirs.²⁷

24. Hesychius 9, quoted in *Water supply*, pp. 227–8.

25. The estimates are based on the recent study by RUGGERI *et al.*, GIS based assessment (quoted n. 23).

26. J. CROW, Blessing or security? Understanding the Christian symbols of a monumental aqueduct bridge in the hinterland of late antique Constantinople, in *Graphic signs of identity, faith, and power in late antiquity and the early Middle Ages*, ed. by I. Garipzanov, C. Goodson, & H. Maguire, Turnhout 2017, pp. 147–74, see p. 170, n. 46.

27. To the three open reservoirs in the outer zone, may be added the remains of a large open cistern north of the Mese at Babiâli Caddesi, *Water supply*, map 15, F7/7; identified with the cistern of Philoxenus possibly the *cisterna Theodosiana*. Since the latter is noted in the Notitia Urbis it should date before ca. 425; see J. BARDILL, The palace of Lausus and nearby monuments in Constantinople : a topographical study, *AJA* 101, 1997, pp. 67–95, esp. 69–75, 83, fig. 2. The earliest open-air cistern between the two walls, the Aetius is dated to 421, but may be cognate with cistern of Pulcheria known for the same year, but otherwise unattested; the recent discussion of the location of the cistern of Pulcheria by D. Angelova, Stamp of power : the afterlife of Pulcheria's buildings, in *Byzantine images and their afterlives : essays in honor of Annemarie Weyl Carr*, ed. by L. Jones, Farnham 2014, pp. 83–103, see pp. 92–3, adds little and refers to the Notitia Urbis as a “guidebook.” For the cistern of Pulcheria, *Chron. Paschale*, ed. Dindorf, p. 578; for Aetius, Marcellinus, *Chronicon*, translations in *Water supply*,

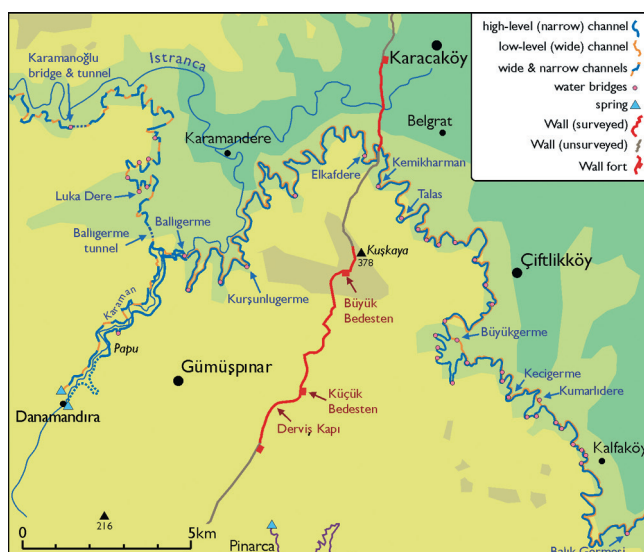


Fig. 3 – Detail of the line of the long-distance aqueduct showing bridges near the villages of Gümüşpınar and Kalfaköy (drawn by Richard Bayliss).

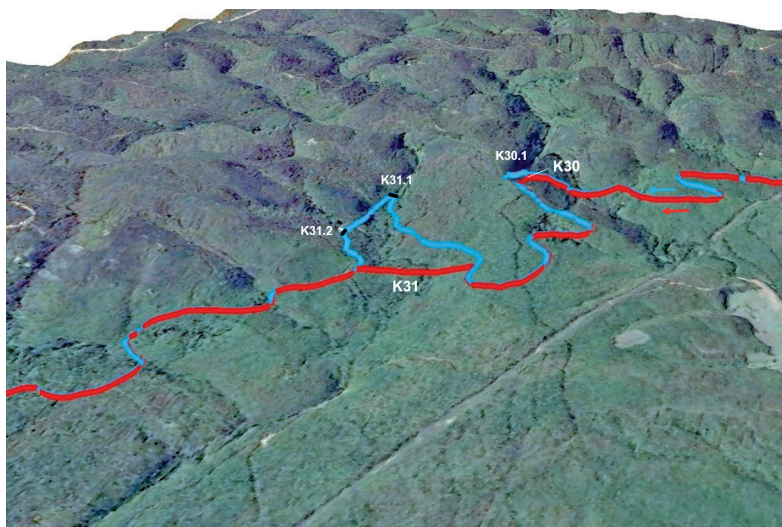


Fig. 4 – Birdseye view of the course of the long-distance Thracian aqueduct near the village of Kalfaköy generated in Archscene showing the course of the channels and bridges. The blue line shows the route of the early 4th-century channel and the red line the revised course reducing the channel length with monumental bridges at Keçigerme K30 and Kumarlidere K31; the earlier bridges are marked at K30.1 and K31.1 and K31.2 (drawn by Francesca Ruggeri).



Fig. 5 – Balligerme. View from the north showing the two phases of later reconstruction to the upper piers and arch.



Fig. 6 – Kurşunlugerme. View of the central piers from the east, two channels crossed the bridge, one on the upper pier, and the second on the broad ledge below the upper pier.

Outside of the city further works are attested throughout the 6th century, and it is possible to recognise two main phases of construction one of which is associated with the only dateable inscription in situ from the entire line, work of construction directed by Longinus a former prefect of the city, dated after 542. These works are situated in an arc between Luka Dere and Karatepe (fig. 3), and may reflect specific seismic damage, some of which may be associated with the destruction known to have affected the nearby Anastasian Wall before the attack by the Kutrigurs in 558/9.²⁸

The most significant disruption to the city's water supply occurred during the great siege of 626 when the Avars are known to have cut the long-distance supply, an inevitable fate given the great length of the system. However it is important to note that there is no evidence to suggest that the Hadrianic line was effected and it is only the long-distance line of Valens that was restored by Constantine V. This work drew in workers from across the Aegean lands, Thrace and Anatolia and is one of the certain indicators of the great revival in imperial fortunes during the late 8th century. Further maintenance and restorations continued over the next two centuries and at the great bridge at Balligerme (fig. 5) restoration characteristic of middle-Byzantine construction may be associated with an inscription of Basil II and Constantine VIII after 1000.²⁹ Especially important for this text is that it demonstrates repairs and continuing usage of the extended aqueduct line flowing from Vize into the 11th century.

Before considering the water usage and distribution within the city it is important to assess the impact of this great enterprise of the landscape and communities of Thrace. The catchments and tunnels have been noted but for the most part the waters were sourced and flowed through forested regions; a remote environment which concealed and protected the security of the system from attackers. Water capture of springs and other sources for transport to Constantinople may have disadvantaged some rural communities, but not on the scale of the Aqua Augusta as can be discerned in the more densely populated rural and urban environments of Campagna in Italy.³⁰ Bizye (modern Vize) was the only city on the route and was probably located at too high an elevation above the sources at Pazarlı so is unlikely to have suffered, relying on alternative springs as a well as a nearby river. As the waters flowed closer to Constantinople's immediate hinterland the aqueduct channels provided an opportunity for private landowners. Throughout the history of Roman legislation on water usage there was a concern for the abuse of public

p. 229. The double naming of both cisterns is intriguing, reflecting a tension between either imperial or patrician patrons, see PICKETT, *Water and empire* (quoted n. 9), p. 120. The most secure dating evidence from the new bridges derives from the elaborate decoration of the bridge at Kuşunlugerme (fig. 6), which suggests the work of decoration was completed by the mid-5th century at the latest, see CROW, *Blessing or security?* (quoted n. 26), pp. 165–7; however the water could have been flowing across the bridge several years before the decoration was completed.

28. J. CROW, *Water and late antique Constantinople*: "It would be abominable for the inhabitants of this Beautiful City to be compelled to purchase water", in *Two Romes* (quoted n. 6), pp. 116–35, see pp. 129–32.

29. *Water supply*, pp. 91–2, 238.

30. See the study of the Aqua Augusta and its ecologies by D. KEENAN-JONES, *Large-scale water management projects in Roman central-southern Italy*, in *The ancient Mediterranean environment between science and history*, ed. by W. V. Harris (Columbia studies in the classical tradition 39), Leiden 2013, pp. 233–56.

water for private gain. A number of imperial edicts, dating from the 4th and into the early 6th centuries show how the state struggled to control unlicensed tapping of the water sources for mills, irrigation and other domestic uses. In turn, these documents present an important insight on irrigation and rural water use, an aspect of late antique and Byzantine land management which remains silent in most of the contemporary sources.³¹ Earlier Roman laws were applied to Constantinople and landowners on the line of the channels were exempted from specific burdens but were required to keep the conduits clear and to ensure the line of the aqueduct was kept free from tree roots 15 feet to the right and left of the channel itself.³²

For this and later 4th-century laws the terminology is in Latin, but by later 5th and 6th centuries we observe the emergence of Greek words, often used uniquely in this context. Thus in one law of Zeno there is reference to public springs in Constantinople originally public but made private although here we can be fairly sure that the concern is for sources outside the city, although without explicitly noting they were for the city's usage.³³ A subsequent rescript of Zeno, addressed to Spontius,³⁴ presents more intriguing aspects of the water supply system.³⁵ The rescript opens by forbidding those of rank from tampering with either the *fontes publicos* (public springs) as noted in the previous rescript or the *munuscularios aquaeductus* both which flow into the public aqueducts. In this case we are certainly concerned with the process of water capture and delivery outside the city since waters were supplying the public system. Earlier 4th-century rescripts from Rome mention the conduits and main aqueduct channels as *formae meatus*.³⁶ However *munusculus* literally translates as a gift, and could in this context define the lesser channels

31. For a recent discussion of this legislation see P. BIAVASCHI, Dalla scrittura su tabulae alla scrittura sulla pelle : il valore del documento scritto nelle costituzioni del titolo De aquaeductu del Codice teodosiano, in *Ravenna capitale : permanenze del mondo giuridico romano in Occidente nei secoli V-VIII : instrumenta, civitates, collegia, studium iuris*, cur. da G. Bassanelli Sommariva, Santarcangelo di Romagna 2014, pp. 95–118; and C. BRUNN, Roman emperors and legislation on public water use in the Roman Empire : clarification and problems, *Water history* 4, 1, 2012, pp. 11–34.

32. *CTh* 15.2.1, *CJ* 11.43.1, the law was originally addressed to the *consularis aquarum* in Rome in AD 330. Given the length of the Thracian system it is seems unlikely that it was possible to find landowners in the remote forests to undertake this task. The legislation must apply closer to the city.

33. *Diligenter investigari decernimus, qui publici ab initio fontes vel, cum essent ab initio privati, postquam publice usum praebuerunt, ad privatorum usum conversi sunt*, in this context *publici fontes* is better understood as springs rather than fountains, *CJ* 11.43.9, addressed to Sporacius.

34. The names are corrupt and Sporacius is probably cognate with Spontius.

35. *CJ* 43.8.10, see the translation in *The Codex of Justinian : a new annotated translation, with parallel Latin and Greek text based on a translation by Justice Fred H. Blume*, B. W. Frier, general ed., Cambridge 2016, pp. 2722–3, this translation and others of the *Codex Justinianus* are to be preferred to those quoted in *Water supply*, Appendix 1.

36. *CJ* 43.1.1; 43.1.3; *Codex of Justinian* (quoted n. 35), pp. 2716–7; see BIAVASCHI, Della scrittura (quoted n. 31) p. 111, translates the term as “piccolo canali.” A law of 389 addressed to Albinus prefect of the city of Rome differentiates between *formae* and *matrices* and the *aqueductus* itself, *CJ* 11.43.3: P. JAILLETTE & F. REDUZZI MEROLA, L'eau à usage agricole dans la législation romaine de l'époque tardive : du Code théodosien au Code justinien, in *Vers une gestion intégrée de l'eau dans l'Empire romain*, éd. par E. Hermon, Roma 2008, pp. 229–42, see p. 231, describe the *matrices* as conduits. Since the law also mentions reservoirs (*castella*) this is likely to be an urban context in Rome, but how the elements represented a hierarchy of water distribution is not clear, unless the *matrices* are better understood as centers of distribution.

fed by subsidiary springs contributing to the main line, a feature we observed during fieldwork in a number of places along the main aqueduct channel and which may be defined as a dendritic system.³⁷ In the next section of Zeno's rescript concerned with water theft the term *munusculus* is employed as a synonym for the Greek term *paragogia* (παράγωγια), here to be also understood as side channels from the main channel (*publicus aquaeductus*).³⁸ Further addressing concern for the security of the main channel the rescript continues by defining the penalties of confiscation of property for which public water was channelled off, here listed as suburban properties, estates, water mills, baths and gardens. While as we have observed for the city itself agriculture was not exclusively extra-mural, the list presents a range of farming activities including horticulture requiring additional water and irrigation outside the city. The locations are unknown, but presumably the main culprits were situated close to the two mains water supplies for the city, the long distance aqueduct of Valens and the waters of the aqueduct of Hadrian from the forest of Belgrade. These would have properties to the west and north-west of the city, along the Alibey Dere (Kydaros) and north towards Kemerburgaz (fig. 1) although the Roman water sources are neither specified nor located. The rescript concludes by noting the staff of *aquarii* and *aquarum custodes*, water guards, translated into Greek as *hydrophylakes*, intended to maintain and protect the city's supplies.³⁹

Very little is known of these suburban properties, since as noted before (n. 8) there has been hardly any attempt to document the archaeological landscape of Istanbul's western hinterland in recent years. From our surveys in the eastern parts of the forested zone we recognised two small settlements close to the aqueduct line in the vicinity of Dağyenice, but there has been no systematic study.⁴⁰ Although our investigation of the structure of the Ma'zul Kemer bridge on the Halkalı System south-west of the city has questioned the identification by Dalman and Çeçen of its Roman and Byzantine origins,⁴¹ there is every reason to believe that these springs may have been used for the Byzantine city. In particular they are the most obvious source to supply the open reservoir at the Fildamı in the valley north of the site of the Hebdomen (Bakirköy). In the context of these sources closer to the city it is worth reiterating the conclusions of Kâzım Çeçen concerning the Roman/Byzantine remains in the forest of Belgrade from near Kemerburgaz and Kırkçeşme. These springs which sourced the main Ottoman system are assumed to be the origin of the aqueduct of Hadrian, entering the city at an elevation approximately equivalent to the later Ottoman water lines.⁴² The system as built by Sinan in the mid-16th century included the monumental bridges of the Eğri or Kovuk Kemer and the Uzun Kemer, the latter is 711 m in length with 50 upper arcades. Outwardly these structures appear as Sinan's great monuments, albeit constructed in a manner reminiscent of the great Thracian bridges of

37. *Water supply*, p. 61.

38. *Codex of Justinian* (quoted n. 35), pp. 2722–3 translates *paragogia* as service-pipes; BIAVASCHI, Della scrittura (quoted n. 31), p. 111, does not discuss this rare term.

39. For the maintenance of the system see J. CROW, Ruling the water : managing the water supply of Constantinople, *Water history* 4, 1, 2012, pp. 35–56.

40. J. CROW, Survey in Thrace 2007–2008, *Anatolian archaeology* 14, 2008, pp. 15–26.

41. *Water supply*, pp. 87, 115.

42. See the discussion in K. WARD, J. CROW & M. CRAPPER, Water-supply infrastructure of Byzantine Constantinople, *JRA* 30, 2017, pp. 175–95.

the 5th century. In places however there are lower distinctive works which it is difficult not to recognize as the traces of earlier Roman bridges with later repairs as implied from Gilles account⁴³ (fig. 7). If we accept that comparable tall and long bridges were required to bring waters from the Belgrade Forest this would suggest that the late Roman works closer to the city were on an equally massive scale, but almost completely refurbished by later Byzantine and more especially Ottoman works. Such works are known from provincial aqueducts in the Roman world, notably at Segovia where the bridge is 811 m in length. However, the lowest stone work from those bridges in the Belgrade Forest is comparable to the structures in Thrace dating from around 400 or later in the 5th century. A feature of the rebuilt long-distance Thracian system was the reduction of long runs of channel around valleys by the building of longer taller bridges, notably at Kumarlıdere and Büyükgörme.⁴⁴ It is feasible that a similar construction strategy was adopted in the Belgrade Forest, resulting in the predecessors of the long Ottoman bridges and reconfiguring the earlier Roman line for which no trace can be identified with any certainty. Our recent research project has focused on the long-distance Thracian line and we have not created a detailed terrain model of the channels and topography in the Belgrade Forest to be able to test this hypothesis, but it could be focus for future research.



Fig. 7 – Detail of the pier base at the Ottoman Kovuk Kemer part of the forest of Belgrade system. Note the earlier less regular stonework, possibly representing the traces of an earlier Byzantine bridge (photograph by J. Crow 2002).

WATER IN THE CITY

One of the main themes of the recent research project “Engineering the water supply of Constantinople”⁴⁵ has focused on the distribution and demand for water within the Byzantine city using as a source the city’s topography, the network of cisterns and our

43. K. ÇEÇEN, *İstanbul’un Osmanlı dönemi su yolları*, [ed. C. Kolay], İstanbul 1999, pp. 70–81, 115–7; see Pierre Gilles, *Itinéraires byzantins*, pp. 116–7, also quoted with discussion in *Water supply*, p. 243. Note that Gilles considered the earlier Byzantine work to date from the time of the Comnenian restoration. In addition to quarry-faced blockwork like the Thracian bridges, within the Ottoman structures are traces of earlier brick bands possibly dating to the middle-Byzantine period. The bridges have been maintained over the centuries and show evidence for extensive modern intervention and restoration.

44. *Water supply*, pp. 70–8, map 5; see F. RUGGERI, *Engineering the Byzantine water supply of Constantinople : mapping, hydrology and hydraulics of the long aqueducts outside the City*, PhD thesis, University of Edinburgh 2018.

45. See note 3.

current knowledge of water channels, combined with new estimates of available water flow and demand. Preliminary results have been able to revise some of the conclusions from the previous studies. In particular in the 2008 monograph we suggested that the line of the Hadrianic aqueduct passed along the flanks of the hills overlooking the Golden Horn to be able to access the Yerebatan Saray (Basilica Cistern), and the baths and palaces at the east end of the peninsula.⁴⁶

However by careful GIS analysis Kate Ward has been able to demonstrate that the Byzantine low level system sourced from the Belgrade Forest is more likely to have taken a similar line to that later adopted by the Ottoman channels from the Kırkçeşme springs (fig. 8). From a taksim or distribution centre at Tezgâhçılar Kubbesi, situated on the north side of the Valens Aqueduct, the Ottoman system followed a line around the south side of the peninsula, although a more northern branch could have continued above the shore line of the Golden Horn as far as the north-west flanks of the second hill.⁴⁷ According to the new hypothesis the main south branch will have been able to reach all the main

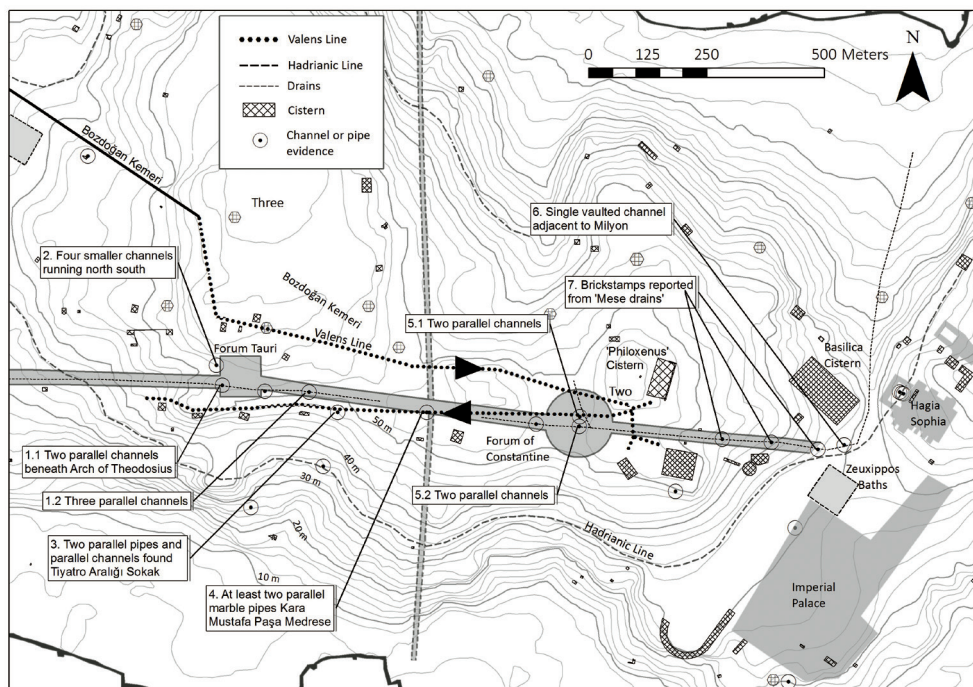


Fig. 8 – Map showing the revised course of the low-level Hadrianic channel and the Valens channel (drawn by Kate Ward, see WARD *et al.*, Water-supply infrastructure [quoted n. 42], fig. 4).

46. *Water supply*, fig. 2.2.

47. WARD *et al.*, *Water-supply infrastructure* (quoted n. 42), pp. 180–5, fig. 4; see K. Ward's doctoral thesis for a fuller discussion in the context of supply and demand, *An engineering exploration*, (quoted n. 6).

consumers at the east end of the peninsula: the Great Palace, the Zeuxippus Baths, the Basilica Cistern and the cistern in the Sphendone of the Hippodrome.⁴⁸ The new analysis makes fewer changes to the suggested line of the high level system which flowed across the aqueduct of Valens. There is a detailed discussion of possible channels to the west of the bridge as well as an evaluation of the evidence for stone channels known from the below the line of the Mese. The study concludes that the main high level line was situated to the north and parallel to the Mese and importantly is able to bring together and document the location of channels and drains between the Forum of Constantine and the Forum Tauri.⁴⁹

In addition to documenting the known channels and modelling the main distribution lines the new project has been able to reassess the concordance of cisterns from within the city. Jonathan Bardill's previous assessment listed a total of 159 cisterns on the historic peninsula.⁵⁰ A further study by Kerim Altuğ was able to document 158 entries in part based on the archives of the Istanbul Municipality. Through comparison of the two lists it has been possible to identify 209 unique examples, including some examples documented from the 19th and early 20th centuries⁵¹ (fig. 9). In size they vary from the massive open reservoirs located in the intermural zone to very small cisterns providing water for individual dwellings.⁵² Although the smallest may have benefited from rain water collection, the vast majority represent a network of water supply and distribution ranging in scale across the city. Current studies are investigating how water will have been allocated. The new location map of cisterns reflects closely previous studies,⁵³ with the preponderance of cisterns occupying the higher ground in a band north side of the Valens line, but with clusters around the Column of Marcian and more marked towards the Forum Taurii, and then more or less uniformly across the east end of the peninsula. What we have not yet considered is the effect of later urban developments on either the identification or the destruction of cisterns and how this has influenced their known distributions, it is notable from any distribution of cisterns that there is a relative blank space on the 3rd hill, now occupied by the Suleymaniye Camii and its külliye. This was the district of Oxeia, focus for the 7th-century miracles of St. Artemios and although it is relatively high in elevation the absence of cisterns may be attributed to the extensive Ottoman monuments, including as well as Bayezit and the Covered Bazaar from the later 15th century.⁵⁴

48. WARD *et al.*, Water-supply infrastructure (quoted n. 42), fig. 7.

49. *Ibid.*, pp. 185–90, fig. 7.

50. See *Water supply*, pp. 143–55.

51. See the recent thesis by K. ALTUĞ, *İstanbul'da Bizans dönemi sarnıçlarının mimari özellikleri ve kentin tarihsel topografyasındaki dağılımı*, PhD thesis, İstanbul technical University, İstanbul 2013; and K. ALTUĞ, Planlama ilkeleri ve yapım teknikleri açısından tarihi yarımada'daki Bizans dönemi sarnıçları [Notes on planning and construction techniques of Byzantine cisterns in the historical peninsula of İstanbul], *Restorasyon/Konservasyon* 15, 2012, pp. 3–22, with coloured illustrations and plans of many of the city's cisterns; for an analysis of the system see K. WARD, M. CRAPPER, K. ALTUĞ & J. CROW, The Byzantine cisterns of Constantinople, *Water science and technology : water supply* 17, 6, 2017, pp. 1499–505.

52. WARD *et al.*, Byzantine cisterns (quoted n. 51), fig. 3; WARD *et al.*, Water-supply infrastructure (quoted n. 42), fig. 9.

53. Compare *Water supply*, maps 12–5; WARD *et al.*, Byzantine cisterns (quoted n. 51), fig. 2; see also discussion in *Constantinople : archaeology of a Byzantine megapolis* (quoted n. 5), p. 19.

54. *Water supply*, map 14, E/6 as defined by later terraces, compare with fig. 9.

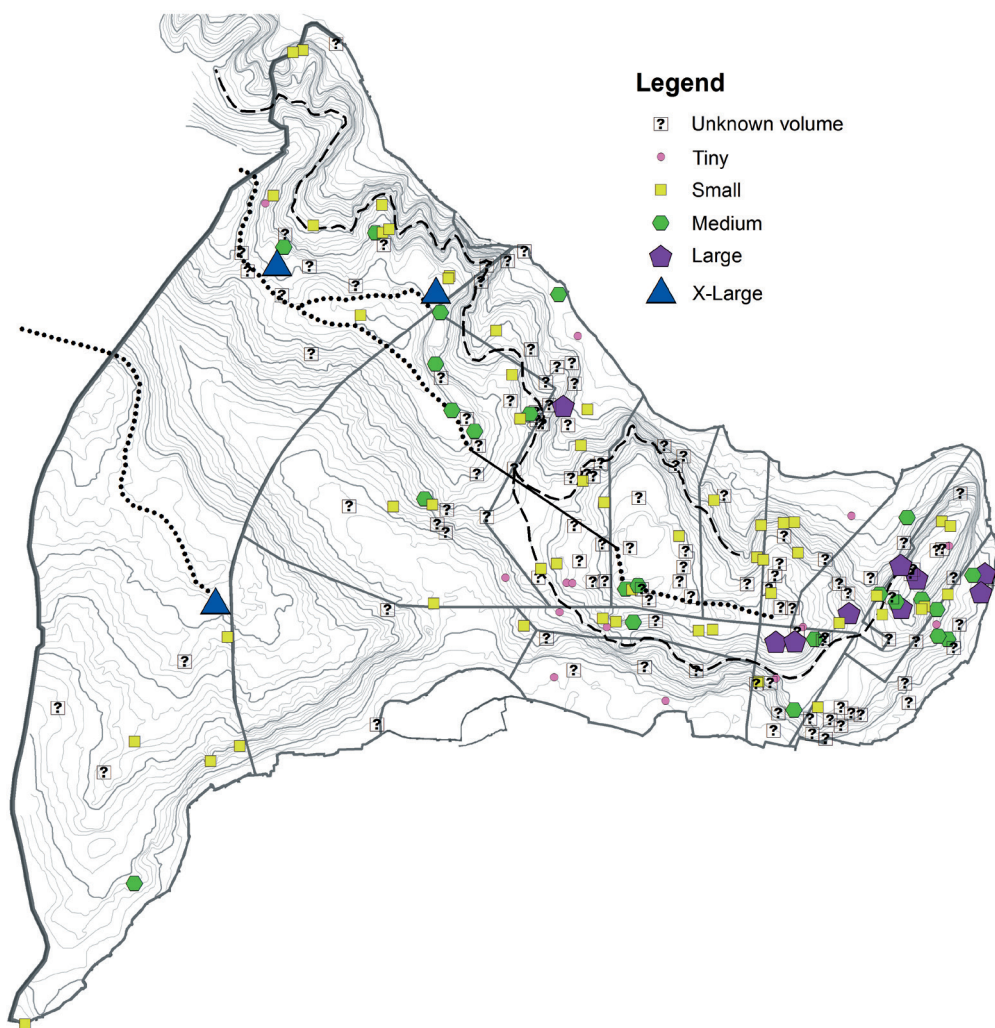


Fig. 9 – Map showing the distribution of 209 Byzantine period cisterns in Constantinople, the revised lines of the two main channels and the approximate outline of the city's regions (drawn by Kate Ward, see WARD *et al.*, Byzantine cisterns [quoted n. 51], fig. 1).

Historically cisterns are known to have been constructed in the city from the 4th century onwards.⁵⁵ However the appearance of large reservoirs and covered cisterns is better documented from the 5th and 6th centuries.⁵⁶ The open reservoirs within the walls

55. The history is outlined in *Water supply*, pp. 15–6; 126–40, Appendix 1; the Modestiaca Cistern (363–9) *Consularia Constantinopolitana* AD 369, predates the arrival of the Thracian waters, note also Libanius' *Letters* 251, to Honoratus which talks of “the abundant reservoirs by which it is possible for you to rival even us,” quoted in *Water supply*, p. 223.

56. *Water supply*, p. 128.

were all constructed in the 5th century and it is difficult not to associate their construction with the additional water supply from the extension of the Valens Aqueduct to Bizye. How they functioned and contributed to the water supply as whole remains uncertain. The discovery of a chamber beside the cistern of Aspar in the grounds of the Yavuz Sultan Selim Camii may provide a clue to how water was extracted and dispersed from this great reservoir, but investigation and publication remains limited.⁵⁷ The reign of Anastasius possibly saw the beginning of the construction of very large covered cisterns in the heart of the city with the Binbirdirek, although the chronology of this cistern is uncertain⁵⁸ (figs. 10 and 11). This is the deepest of the large urban cisterns and reflects the need to create a vast storage space in what was crowded urban region allowing for a limited footprint. Also credited to Anastasius was the creation of the Cold Cistern in the Sphendone of the Hippodrome. The Cold Cistern is the earliest example of inserting a cistern into an existing large building.⁵⁹ Soon after came the largest of the covered cisterns, the Yerebatan Saray, the Basilica Cistern constructed by Justinian.⁶⁰ A recent study on Procopius and imperial hydraulic works sees the Basilica Cistern as anomalous, since it represents “economization, rather than abundance of supply as a goal of major imperial water infrastructure projects.”⁶¹ Such a view is to be preferred to that expressed recently by Michael McCormick and colleagues who suggest that the construction of the Basilica Cistern was a specific response to a sequence of droughts in the late 5th century apparent in the geological record from the Sofular Cave, 400 km east of Constantinople.⁶² Our contemporary texts in the 5th and 6th centuries however present a range of circumstances which can result in poor water supply: poor maintenance and outright neglect,⁶³ physical disruption as a result of military action,⁶⁴ climatic events, either drought or extreme heat,⁶⁵

57. M. Sav, Yavuz Sultan Selim Camii çevresi veya İstanbul’un beşinci tepesinin arkeolojik topografyası, *Restorasyon* 1, 2010, pp. 4–13, see p. 10; we are most grateful to Dr. Kerim Altuğ for drawing our attention to this structure and publication.

58. Also of similar date on the basis of capital forms was the cistern in Divânı Ali Sokağı, J. BARDILL, *Brickstamps of Constantinople*, Oxford 2004, pp. 129–30; located between the Forum of Constantine and the Forum Taurii, see *Water supply*, p. 151, map 15, F7/1.

59. P. FORCHHEIMER & J. STRZYGOWSKI, *Die byzantinischen Wasserbehälter von Konstantinopel* (Byzantinische Denkmäler 2), Wien 1893, pp. 104–5.

60. *Water supply*, pp. 17–9.

61. PICKETT, Water and empire (quoted n. 9), p. 105.

62. M. MCCORMICK *et al.* Climate change during and after the Roman Empire : reconstructing the past from scientific and historical evidence, *Journal of interdisciplinary history* 43, 2012, pp. 169–220, see pp. 197–8, n. 22; note a recent editorial in *Nature*: Don’t jump to conclusions about climate change and civil conflict, *Nature* 554, 2018, pp. 275–6, cautioning against attributing political crisis to climate change.

63. Procopius, *Anec.* 26.23, the date of these events is not clear, although Theodora was still alive.

64. Two events: in 487 Theodoric son of Valamer, ex-consul and *magister militum praesentalis*, rebelled against Zeno and cut the city’s aqueduct (Valens), he left for Italy, no shortage is reported, Malalas, *Chronicle* 15.9; in 626 the Avars cut the Valens Aqueduct, it was not restored until 766 following a drought, Theophanes, *Chronicle*, AM 6258, see below p. 229.

65. Already noted in context of 8th-century restoration, for droughts and shortages in 562 Malalas, *Chronicle* 18.139; noting that fights broke out at cisterns; public fountains may have frequently been the focus for urban disorder, see Libanius, *Antiochikos* (Or. 11.247), who contrasts his home city’s abundance with other cities overcrowded fountains.



Fig. 10 – Detail of the interior of the Binbirdirek Cistern showing the distinctive capitals dating to the early 6th century.



Fig. 11 – Detail of similar capitals from the cistern in Divânı Ali Sokağı (F7/1), note that later fill has raised the modern floor (photograph by Kerim Altuğ, reproduced with permission).

controlling water access as a political tool.⁶⁶ In addition from the *Chronicon Paschale* we learn that after the Nika riot in 532 the emperor constructed a cistern as well as granaries and bakeries within the palace “in case of popular crises.”⁶⁷ Clearly these large water infrastructure projects were responding to the needs of the city and were not mere vanity programmes like the nymphaea and baths of earlier Roman cities.⁶⁸ This concentration of water storage at the east end of the peninsula may be a response to increasing concern about wider security in the east Balkans which threatened the city’s hinterland. Certainly it corresponds in time with Anastasius’ decision to construct a new barrier wall only 61 km west of the Land Walls of the city intended to provide an outer defence for the city.⁶⁹ which protected part of the water supply network from Danamadırı and Pınarca, but left exposed all of the outer line to Bizye. Any concerns about the security of the long-distance aqueducts were confirmed at the time of the Avar siege of 626 when later reports indicate that the Valens system was cut and not restored until 766. The restoration of the long-distance system by Constantine V has already been noted and is recognized as a turning point in the fortunes of the city.⁷⁰

A continuing feature of the new cisterns from the 9th century onwards (although few can be dated with any precision) was their insertion into pre-existing elite buildings. This is apparent in the great cistern which occupies a late antique rotunda below the new palace of Romanus Lecapenus at the Myrelaion and also the new cisterns inserted into the large hall north of the palace of Antiochus, and west of the hippodrome.⁷¹ But this was not simply an age of reuse. The literary sources for water usage and patronage remain elusive and enigmatic, although water continues as a theme of elite literature and learning, *paideia*.⁷² But one of the most important new cisterns of the middle-Byzantine period was the cistern constructed as part of the church complex at Küçükaly. The remains were

66. The action of Anastasius cutting the water supply to the pro-Chalcedonian Akoimetai monks, see CROW, Water and late antique Constantinople (quoted n. 28), pp. 125–6.

67. *Chron. Paschale*, ed. Dindorf, p. 629; transl. Whitby, p. 127.

68. For an attempt to describe the nymphaea of Constantinople see P. STEPHENSON & R. HEDLUND, Monumental waterworks in late antique Constantinople, in *Fountains and water culture in Byzantium*, ed. by B. Shilling, P. Stephenson, Cambridge 2016, pp. 36–54.

69. Contemporary accounts refer to the Thracian Wall as *the* Wall of Constantinople, in the same way that the Valens Aqueduct was *the* City’s Aqueduct, distinct from the Hadrianic line, J. CROW, Recent research on the Anastasian Wall in Thrace and late antique linear barriers around the Black Sea, in *Roman frontier studies 2009*, ed. by N. Hodgson *et al.*, Oxford 2017, pp. 131–8.

70. See note 29.

71. MÜLLER-WIENER, *Bildlexikon*, figs. 272, 273; P. NIEWÖHNER, The rotunda at the Myrelaion in Constantinople : pilaster capitals, mosaics and brick stamps, in *The Byzantine court source of power and culture*, ed. by A. Ödekan *et al.*, Istanbul 2013, pp. 5–36, fig. 2; note that on the accession of Romanos Lecapenos the Myrelaion became a monastery see P. MAGDALINO, Medieval Constantinople, in *Id.*, *Studies on the history and topography of Byzantine Constantinople*, Aldershot 2007, I, pp. 25, 73, Romanos provided for the distribution of 30,000 loaves daily at his tomb there; for the cisterns west of the Hippodrome, and the palace of Antiochus, later the church of St. Euphemia, see R. NAUMANN, Vorberichte über die Ausgrabungen zwischen Mese und Antiochus-Palast 1964 im Istanbul, *IstMitt* 15, 1965, pp. 135–48; MÜLLER-WIENER, *Bildlexikon*, fig. 109, C, D; fig. 269; the structural sequence of cisterns is complex, but those to the east in the long hall (Saalbau) are likely to be contemporary with the church, see also MANGO, The water supply (quoted n. 4), p. 8.

72. P. MAGDALINO, The culture of water in the Macedonian renaissance, in *Fountains and water culture* (quoted n. 68), pp. 130–44.

formerly interpreted as the palace of Bryas, but is now convincingly associated with the monastery of Satyros founded by the patriarch Ignatios between 867 and 877. Located close to the east shore of the Sea of Marmara, the monastery survives as a rectangular platform 70 by 51 m above the level coastal plain. An intricately designed and centrally planned church is located towards the east end of the platform, with an open atrium in front of it to the west (fig. 12). Set in the platform was an extensive cistern which partly reflects the plan of the church to the east but was supported by a vaulted roof supported on piers, now lost, to the west. This rectangular enclosure of the west half of the cistern was previously interpreted as a courtyard or cloister of the “Islamic-style” palace. However the evidence of a well preserved channel entering to the east below the church with a settling tank before its entrance confirms its function as a cistern. The complex of cistern and church and other structures is now amongst the best documented middle-Byzantine buildings in the city and its suburbs. It is estimated that the cistern could have contained a total volume of water of 3,000 m³.⁷³ Water storage and management was clearly a major concern of the monastery’s builders from the outset and the quantity of water will have exceeded the needs of a monastic community. We can suggest therefore that the water was either distributed to the surrounding communities for either domestic or agricultural reasons. More significantly it provided the monastery with a resource it could control. None of the *typika* from monasteries in Constantinople refer to water usage or rights.⁷⁴ However from Thessaloniki there is clear evidence for the management and control of the city’s water resources by the main monasteries, a role that continued into the Ottoman period. A recent study from Thessaloniki has been able to document the Byzantine water network and the role of the urban monasteries and especially the monastery of Vlatadon which was able to store and distribute water from a branch of the aqueduct from the Choriatis springs 22 km outside the city.⁷⁵ Significantly the middle Byzantine period cisterns associated with monasteries such as Vlatadon (II/Δ7)⁷⁶ have a limited capacity of 430 m³ and at Agioi Apostoloi (IV/Δ4), which had a capacity of 800 m³. As in Constantinople at the same time older buildings around the city were utilised for water storage including the monumental vestibule of the Octagon at the Galerian complex (II/

73. A. RICCI, *Reinterpretation of the “Palace of Bryas”: a study in Byzantine architecture, history and historiography*, PhD dissertation, Princeton 2008, pp. 40–9; EAD., Küçüyalı’da (İstanbul) orta Bizans yerleşmesi : üretim altyapı ve yeniden kullanım = Infrastruttura, produzione e riutilizzo il cantiere medio Bizantino a Küçüyalı (İstanbul), *Arkeoloji ve sanat* 154, 2017, pp. 135–46, see pp. 138–40, fig. 3 for cross section of inflow channel.

74. See however the attempt to relate monastic sites with urban topography including water features by G. VARINLIOĞLU, *Urban monasteries in Constantinople and Thessaloniki : distribution patterns in time and urban topography*, in *Archaeology in architecture : studies in honor of Cecil L. Striker*, ed. by J. J. Emerick & D. Deliyannis, Mainz am Rhein 2005, pp. 187–98.

75. Ε. ΓΚΑΛΑ-ΓΕΩΡΓΙΛΑ [E. GALA-GEORGILA], *Δρόμοι του νερού και οργάνωση του χώρου στη Θεσσαλονίκη κατά τη Μέση και ύστερη Βυζαντινή περίοδο*, Θεσσαλονίκη 2015, 2 vol., especially cisterns of Vlatadon, pp. 102–3, 236–8; map 4, cisterns 5, 6, 7, all are quite small in volume; see also the recent study of aqueduct bridge for the Chortiati Aqueduct, Σ. ΑΚΡΙΒΟΠΟΥΛΟΥ & Β. ΚΑΛΑΠΑΝΙΔΟΥ [S. AKRIVOPOULOU & V. KALTAPANIDOU], *Το υδραγωγείο του Χορτιάτη : εργασίες στερέωσης και συντήρησης* = *The Chortiati aqueduct : consolidation and conservation*, Θεσσαλονίκη 2014.

76. The coordinates refer to the maps in Dr. Gala-Georgila’s thesis (quoted n. 75).

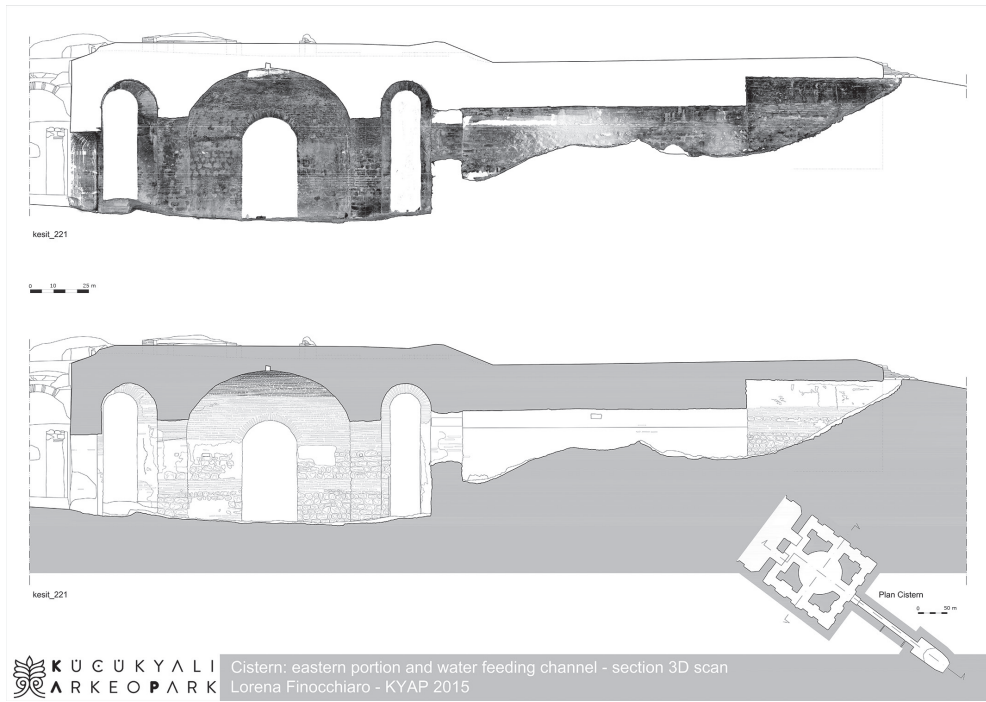


Fig. 12 – Cross section of the cistern, the church and inflow channel (from the right) at Küçükalyı (reproduced with permission from Prof. Alessandra Ricci).

Δ37), with a capacity of 1,250 m³, and the Cryptoporticus of the Ancient Forum (III/Δ21), with a capacity of 4,500–5,000 m³.

From Constantinople a number of cisterns are associated with known monastic churches including the Studios and the Chora Monasteries. One of the most important surviving middle Byzantine monasteries is the Pantokrator (Zeyrek Camii) and a significant cluster of cisterns are known in its vicinity.⁷⁷ Below the ecclesiastical complex and close to Atatürk Bulvarı is the cistern of Unkapanı. It was constructed into the hillside with scalloped buttresses facing the road. There is no independent dating evidence, but there is nothing such as brick stamps or specific types of capitals to suggest an early date. Given the complexity of the construction and design at Küçükalyı from the late 9th century there is no reason not to consider that the Unkapanı Cistern with a maximum internal capacity of 3,500 m³ was not constructed in the same era. The main monastery of the Pantocrator on the hill side above was provided with a number of cisterns close by for the use of the community and associated charitable endowments but on the basis of the documented examples from Thessaloniki it seems likely the major imperial foundation

77. *Water supply*, pp. 148–9, map 14.

was also instrumental in the regulation of water distribution from its larger cistern which could be supplied by the Hadrianic channel.⁷⁸

It is important to recognise that archaeological evidence within Constantinople and elsewhere attests to the maintenance and continuing development of Byzantine hydraulic technologies. A recently surveyed 11th-century monastery from Pamphylia provides excellent evidence for a water tower intended to balance pressure for a water channel leading into the monastery,⁷⁹ similar features are also attested in Thessaloniki. Similar methods were known to the Romans, and these towers were later known as *suterazı* and were widely used by the Ottomans, but how far there was technology transfer from the Byzantines to early Ottoman engineers remains to be investigated.⁸⁰ A feature of very large reservoirs was the need to control the volume and pressure of outflow. At the Fildamı Reservoir outside of the city and north of the Hebdomon Palace a chamber was added which could more effectively control the outflow and hence reduce friction and erosion to the outflowing water channels (fig. 13). It is suggested that the Fildamı most likely dates at the end or later than the 6th century, but more significantly the water tower in question was constructed in a very different construction method and is structurally later in date.⁸¹ Within another reservoir in the city, the Aspar Reservoir, a circular structure was constructed in the north-west corner, it is different structurally from water tower at the Fildamı, and its function is unclear.⁸² However it may have served to manage the outflow, or to aerate the waters. The reservoir dates from the mid-5th century, but the form of construction of the tower is clearly middle-Byzantine in date shown from the use of cloisonné brickwork. Aeration was a recognized problem in maintaining water quality as is apparent from the openings and windows in many of the larger covered cisterns, including the Unkapanı noted above. However as an indication of the widespread awareness of advanced water technology in the Byzantine world the evidence from these structural observations is rarely if ever reflected in literary texts, although the discussion on “Besieging a city” in Leo VI’s *Taktika* included detailed advice on the importance of aeration and how to keep water fresh in stored containers.⁸³

78. For a plan and elevation of the Unkapanı cistern see FORCHHEIMER & STRZYGOWSKI, *Byzantinischen Wasserbehälter* (quoted n. 59), pp. 70–1; *Water supply*, map 14, E5/2, fig. 5.1, the only comparable scalloped buttresses are from the Fildamı, but they are not vaulted. See n. 71 above for the charitable distribution of bread at the Myrelaion monastery.

79. A. TIRYAKI, *Kislecukru Manastiri : Antalya’da on ikinci yüzyıla ait bizans manastiri*, in *On ikinci ve on üçüncü yüzyıllarda Bizans dünyasında değişim = Change in the Byzantine world in the twelfth and thirteenth centuries : International Sevgi Gönül Byzantine studies symposium*, ed. A. Ödekan et al., İstanbul 2010, pp. 447–57, see pp. 455–56, fig. 14.

80. For the early Ottoman water supply of the Topkapı Palace, see the recent study of a newly identified manuscript description, G. NEÇİPOĞLU, “Virtual archaeology” in light of a new document on the Topkapı Palace’s waterworks and earliest buildings, circa 1509, *Muqarnas* 30, 2013, pp. 315–50.

81. For the dating of the Fildamı see BARDILL, *Brickstamps* (quoted n. 58), p. 39; for a description *Water supply*, p. 19, n. 53; pp. 132–7; see further discussion in WARD, *An engineering exploration* (quoted n. 6).

82. *Water supply*, p. 131, fig. 6.3.

83. Leo VI, *Taktika* 15.3.90; commentary by J. HALDON, *A critical commentary on the Taktika of Leo VI*, Washington DC 2014, p. 381, n. 57; also including the advice that water keeps better in large containers; in his account of the Norman siege of Thessaloniki in 1185 Eustathios describes the problems the defenders faced by rushing the construction of a cistern on the Acropolis filled with

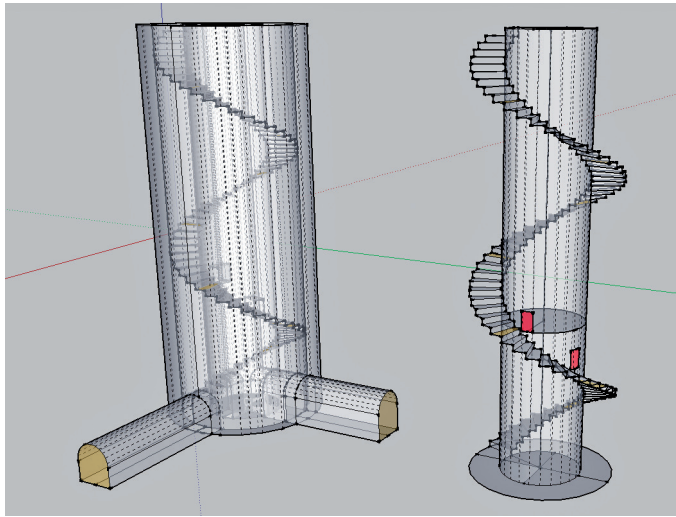


Fig. 13 – The Byzantine water tower at the Fildami. The drawing on the left shows the exterior cylinder with an inflow channel on the right side through the east wall of the reservoir. The channel on the left is the outflow (but probably should be placed to the right as it is known to have flowed south towards the Hebdomen). The drawing on the right shows the interior cylinder of stone with the spiral staircase between the inner and outer walls. Water entered the inner cylinder from the reservoir under pressure and rose to the level of the interior water level. It was able to spill over through openings, marked in red, into the outer chamber and flow through the outflow channel, thus reducing the pressure of water entering the water channels.

The spiral stairs allowed access to control the level of the outflow overspill
 (documented by Prof. Paolo Bono and drawn by Francesca Ruggeri,
 see *Water supply*, pp. 135–7, figs. 6.7, 6.8, and WARD, *An engineering exploration* [quoted n. 6]).

Surveys of the history of water and of water engineering until recently have neglected the contribution of Byzantium and its legacy for the Ottomans. Yet in an 11th-century account of the caliph al-Mansur's new city of Baghdad (later 8th century) by Al-Khaṭīb al-Baghdadi, the chronicler tells how an anonymous Byzantine ambassador observed to the caliph that his new city had three shortcomings. One concerned the lack of gardens, one the proximity of the people to the palace, and the third the distance of the palace from water, "which is necessary for the lips of the population."⁸⁴ To remedy the last of these the caliph ordered that two canals were dug from the Tigris. The relevance of this

water from the Mount Chortaities when the lime plaster had not dried, Eustathios of Thessaloniki, *The capture of Thessaloniki*, a transl. with introd. and commentary by J. R. Melville-Jones (Byzantina Australiensia 8), Canberra 1988, p. 79, a rare example of a description practical water problems.

84. Al-Khaṭīb al-Baghdadi, transl. in J. LASSNER, *The topography of Baghdad in the early Middle Ages : text and studies*, Detroit 1970, p. 58, n. 50, although Lassner considers that the anecdote may be a later embellishment he considers it to reflect contemporary events; I am grateful to Antonio Montinaro for drawing my attention to this source.

tale for our study is not the detail, rather the date and the one perspective it gives on Arab views of the Byzantines, especially as it highlights a competence normally reserved in modern accounts of the history of water to the Islamic world.⁸⁵ Al-Baghdadi's account is set in the later 8th century and it may be merely a coincidence that this was the same period when Constantine V restored the so-called "Bulgarian" channel. Yet we know that Arab sources were certainly aware and impressed by Constantinople's water supply, notably the account of the late 9th-century prisoner, Haroun ibn-Yahya, who was the first to claim the waters came from Bulgaria.⁸⁶

A great city like Constantinople needed to retain the lessons of the past but also to be able to adapt and if possible innovate. Such attributes are not immediately apparent in many aspects of Byzantine society and culture. Yet as Constantinople regained its confidence in the later 8th century a key symbol of its potential was the restoration of the long-distance water supply. The decision to restore the earlier infrastructure was a response to an emerging urban complexity.⁸⁷ Formerly the distribution of water and its specific delivery was an imperial privilege that acknowledged the right for citizens to access water from public fountains.⁸⁸ But by analogy with the evidence from Thessaloniki and the recently studied example from Küçükalyi it seems reasonable to propose that many of Constantinople's urban monasteries came to take on a role as distribution centres across the city, although there remains evidence for continuing imperial patronage up to the 11th century and a major restructuring under the Comnenoi in response to the pragmatic needs of increasingly aging infrastructural system.⁸⁹ Despite the silence of the written texts on any practical aspects of the system what is clear from the structural evidence is that the Byzantines not only retained the skills of Roman hydraulic engineers, but were able to devise and implement new systems seen at the Fildamı and the cistern of Aspar. But more importantly the massive system constructed from the 4th century demanded a continuum of renovation over seven centuries, field investigation and laboratory analysis allow an insight into this process. From our survey in Thrace we were able to collect samples of carbonate from the sides of the channels. These sinter deposits have recently been analysed as part of our research programme. The rate of deposition can vary due to a range of factors, but there tend to be more deposits in some parts of channel system than others. If they are not regularly scraped clean it is possible for massive build-ups of sinter known for example at Roman aqueducts in Cologne and Nîmes. In Thrace we found relatively small build ups of sinter up to 300 mm in depth, representing perhaps only 30 years of accumulation. At present we have no dates for the deposits but it is reasonable to assume that they are final deposits before it was decided to abandon the system as too vast and broken to reinstate by the mid-12th century. What is significant for our discussion is that this was all that had accumulated before the waters leaked away or were diverted

85. See recently B. FAGAN, *Elixir, a human history of water*, London 2011, devotes a chapter to the Islamic world and makes no mention of Byzantine or Constantinople.

86. N. M. EL CHEIKH, *Byzantium viewed by the Arabs*, Harvard 2004, p. 147; the *Patria* also makes this claim: *Patria* I.69-70, transl. Berger p. 43; the same passage also notes the city's large drains and 40 fountains.

87. See P. HALL, *Cities in civilization, culture, innovation and urban order*, London 1998, p. 611.

88. *Water supply*; CROW, *Water and late antique Constantinople* (quoted n. 28), pp. 125-7.

89. MANGO, *The water supply* (quoted n. 4), p. 18.

for local needs in the 12th century. The surviving sinter and analysis reveals that until that time the channels continued to be regularly cleaned to ensure the waters flowed on towards the City. Equally important is that the best samples were found close to the village of Ayvacık (figs. 2, 14) near the town of Saray, at a distance of 100 km in a direct line west of the Golden Gate. A testament to the enduring legacy of the late antique system but also to the imperial capital's determination and commitment to ensure its survival.⁹⁰

University of Edinburgh

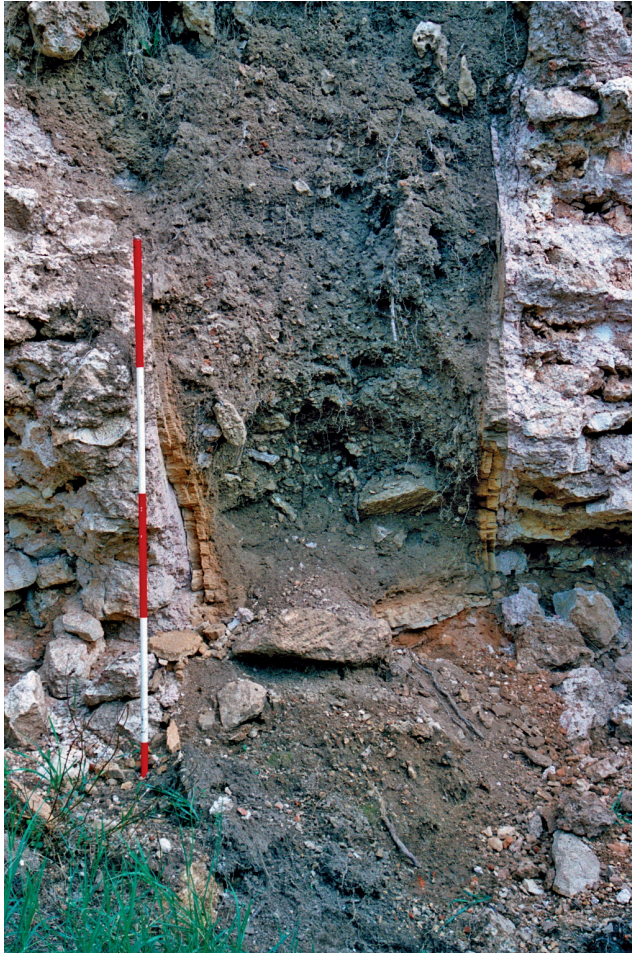


Fig. 14 – Channel near Ayvacık village showing the location of sinter deposits in the sides of the channel (photograph by James Crow).

90. A number of samples were analysed by Prof. Cees Paschier and Dr. Gül Sürmelihiindi, of Tektonophysik, Institut für Geowissenschaften, Mainz, the best examples come from the Ayvacık Dere: *Water supply*, p. 37, map 2, full publication of the geological analysis is in preparation.

ABSTRACTS/RÉSUMÉS

Dominique BARTHÉLEMY, *Empereurs et chevaliers : les frères de Hainaut devant Constantinople et Philippopoli (1203-1208)*

p. 795

The two sons of Count Baldwin V of Hainaut, Baldwin and Henry, were brought to the East by the Fourth Crusade and successively became Latin emperors of Constantinople. The very dense *Chronicle* of Gislebert of Mons suggests that they were trained in classical chivalry, more elegant than truly practical. In their new milieu they faced harsher wars, and had to reconcile the tenets of loyalty and bravery with the prudence required of leaders. We examine here the story of Baldwin's behavior in 1203 under the walls of Constantinople, as told by Robert of Clari, and that of Henry's successive attitudes in 1208 during his campaign against the Vlachs, as told by Henry of Valenciennes.

Albrecht BERGER, *Toponyms of Byzantine Constantinople: topography and etymology*

p. 157

The etymology of place names takes a central role in the topographical and patriographical literature on Constantinople. Toponyms are most commonly derived from a real or an imaginary founder, but such traditions frequently provide the wrong information about the person. Identification of whether this is the result of a mistake, a misunderstanding, or a deliberate invention is often difficult. The alleged names of individuals provided in texts are, in turn, sometimes derived from toponyms or other designations. This contribution attempts to analyze this phenomenon and presents a survey of the different kinds of etymologies encountered within these texts.

Michel CACOUROS, *L'Éloge de saint Baras (BHG 212), « fondateur » du monastère du Prodrome à Pétra : pérégrinations à Constantinople à travers le manuscrit Lesbou Leimónos 43*

p. 567

The *Encomion* of St. Baras (BHG 212), the alleged founder of St. John Prodromos monastery at Petra (Constantinople), raises serious problems. P. Canart, X. Lequeux, and P. A. Yannopoulos examined some of them, but, as long as the only manuscript, *Leimonos* 43, and the menologium it contains (mentioned by A. Ehrhard) had not been studied, no comprehensive solution could be produced. The present article is based on the analysis of the *Leimonos* manuscript (the full palaeographical and codicological description is reserved for the forthcoming edition of the text) and the composition of the menologium. It studies the context in which the *Leimonos* manuscript and the *Encomion* were conceived, written, and used. This text was probably composed in Petra around 1280, when the monastery reopened after the Latin occupation of Constantinople, and added to the *Leimonos*' original core, probably copied around 1240–80 at the Hodegon monastery. The original manuscript contained, among others, texts related to the cult of St. John Prodromos, Petra's patron saint, and homilies by St. John Chrysostom, whose veneration at the monastery can be traced back to its re-foundation by John the Faster at the end of the 11th century. Thus, it was well adapted to Petra's liturgical needs. The addition of the *Encomion* was aimed at serving Petra's renewed ecclesiastical and liturgical life by attaching it to its alleged proto-Byzantine roots.

Dimitri CHATZILAZAROU, *Le centre monumental de Constantinople, espace de synthèse des traditions urbaines gréco-romaines* p. 35

The purpose of this article is the study of the topographical and symbolical synthesis of the monumental center of Constantinople, which surrounded the Sacred Palace. This complex is defined as an urban and symbolical space, the functional synthesis of which was affected by the tradition of the royal cities of the Greco-Roman world, mainly Alexandria, Pergamon and Rome, where monumental centers were located around the royal palaces housing important public functions. We also argue that a symbolic image of the Forum Romanum was intentionally reproduced on the axis of Senate, Augoustaion and Basilica in Constantinople. Especially the iconographic program of the Senate, the Muses in the interior, and Zeus-Jupiter, Athena and Gigantomachy on the façade, projected the ideal of the cultural heritage of Hellenism and echoed similar programs in Athens and Pergamon. This program was directly related to the declaration of emperor Constantius' intention to transform the City into a universal center of philosophy. The dedication of the Cathedral of Constantinople to the Wisdom of God and its topographical and ideological relation to symbols and functions of the Hellenic wisdom and of the cultural tradition of the ancient world in the Senate, the Baths-Gymnasium of Zeuxippus and the Basilica reflected the imperial will to transform Constantinople into the new royal City of the Greco-Roman world and new spiritual metropolis of Hellenic and Christian wisdom.

Jean-Claude CHEYNET, *L'aristocratie byzantine des Balkans et Constantinople (X^e-XII^e siècle)* p. 457

The Balkan aristocracy has attracted less interest than that of Asia Minor. However as early as the 8th century, with the installation of Irene the Athenian on the throne, in the Peloponnesian and Hellas regions—the first regions returned to imperial rule—the great lineages participated in the intrigues of the court of Constantinople. Many of them were related to the Macedonian dynasty. These lineages, quite numerous, maintained their provincial anchorage for a long time and seem to have succeeded in exercising local functions, particularly that of strategos of the Peloponnese. The conquest of Bulgaria, in which these families did not really participate, brought up during the eleventh century the powerful group of “Macedonians” in Adrianople. We do not know exactly how it was formed, but it included mostly “western” families like the Bryennioi or the Batatzai and Eastern elements, like the Tornikioi, transferred to Thrace. They succeeded in being quite regularly at the command of Western tagmata, while the command of the Western Scholes eluded them. The arrival of the Turks strengthened the weight of this group, which received the influx of refugees from Asia Minor, so much so that the Comnenians continued to marry in their principal lineages. The aristocracy of the Balkans has evolved quite differently from that of Anatolia. It did not suffer from the almost permanent war, but it managed to weigh in the political game of the capital as early as possible. It became militarized during the eleventh century due to invasions in the Balkans and transformed into the most powerful pressure group of the empire, especially on the eve of the Fourth Crusade.

Evangelos CHRYSOS, *New perceptions of imperium and sacerdotium in the letters of Pope Nicholas I to Emperor Michael III* p. 313

The initiative of Constantine the Great to convoke the council of Nicaea and preside over it established a pattern of church and state relations that remained unchallenged until the ninth century. It was Pope Nicholas I who in his correspondence with the East, especially in his letters to Emperor Michael III, claimed such a universal role for himself that left no room for imperial intervention. This change of attitude was based on the false documents of the *Pseudo-Isidorian Decretals* that appeared in Rome at that time. The authorities in Constantinople refused to accept

these new norms and this caused the so-called Photian Schism. It is likely that as a reaction to this substantial canonical novelty Patriarch Photius composed during his second tenure in office the legal code known as *Eisagoge* in an effort to establish a new balance of power between the emperor and the patriarch; but his code was never implemented.

James CROW, *The imagined water supply of Byzantine Constantinople, new approaches* p. 211

This paper reviews recent research on the water supply system outside the city of Constantinople based on a recent project *Engineering the Byzantine water supply*. The study is able to present a new estimate of the length of channels based on satellite data for the long distance system in Thrace and revises and develops new conclusions concerning distribution and provides an up to date bibliography of new publications.

Based on a new reading of the 4th–6th-century law codes set in the topographical context of the known hydraulic infrastructure it is possible to assess the impact of the new system on the city's Thracian hinterland and how public waters were abused for private benefit, including irrigation. A preliminary discussion of possible Roman/Byzantine work surviving in the forest of Belgrad presents a question about scale of the earlier works.

Based on a recent Turkish study it is now possible to estimate a significantly greater number of cisterns (total 209) within the city. Furthermore there is a review of the new study of the main channels with the city which has revised the modelled course of the aqueduct of Hadrian. Through the study of the later Ottoman lines and a better awareness of the topography it is possible to predict a more realistic line for this channel. Based on analogy with documented examples from Thessaloniki it is suggested that at a number of middle Byzantine monastic sites including the Pantocrator and Küçükalyı on the Asiatic side acted as distribution centres across the city. Finally the article stresses the ability of Byzantine engineers to maintain and develop new methods to control and aerate water clear evidence for Byzantine ingenuity as reflected in contemporary Arab accounts.

Denis FEISSEL, *Tribune et colonnes impériales à l'Augousteion de Constantinople* p. 121

The *Notitia urbis* (ca. 425) describes a little-known monument of Constantinople's *regio secunda* as "a tribune built with porphyry steps." A number of neglected 4th-century sources attest to the existence of this tribune since the reign of Julian at the very least, situating it close to the Palace and the Senate House located on the Augousteion square. Several imperial statues erected on porphyry columns—the first was the one dedicated by Constantine to his mother, Helena—adorned this square. Empress Eudoxia's silver statue, inaugurated in 403, was erected, according to the Church historians, "on an elevated tribune." The dedicatory epigram describes the statue's location as the place where "the emperors tell the law to the city." It is argued that Eudoxia's column and statue stood on the very Porphyry Tribune of the *Notitia urbis*. Another column with a silver statue, of Theodosius I, stood in the vicinity but was dismantled by Justinian who repositioned the column in front of his new Palace, at the Hebdomon. An obscure fragment of John the Lydian's *De mensibus* (IV, 138 Wünsch) about the Augousteion is shown to be a mixture of authentic elements pertaining to Augustean Rome, and Byzantine traditions about Helena's column. To conclude, we attempt to correct a distorted sentence of John the Lydian's *De magistratibus* (III, 70, 4) relating to the Senate House at the Augousteion.

Bernard FLUSIN & Marina DETORAKI, *Les histoires édifiantes et Constantinople* p. 509

The five edifying stories, here edited (or re-edited) and translated, reveal the city of Constantinople both in its topographic reality and in its imagined traditions, which could not be more real for its inhabitants. These texts, centered on the tenth century, include: *The Hagarene of Petrion* (BHG 1389b); *The translation of the Holy Blood and the Holy Tile* (BHG 788); two stories about Christopher the Protiktor (BHG 1448z and appendix); *The reconciliation of the deacon and the dead priest* (BHG 1322d). Among their most interesting features are Helen's oikos and Philippikos' monastery in Chrysopolis for the first story; the deposition of the blood of the icon of Beirut at the church of All Saints and of the Holy Tile at the palace for the second; the Holy Well for the second story about Christopher, and the doors of St. Sophia for the last text. The stories show how, in the tenth century, the sanctity of Constantinople evolves: the transfer of famous images and relics in the wake of imperial victories enhances their standing; the figures of Christopher the Protiktor and, to an even greater extent, of Nicetas the Chartoularios (in the *Reconciliation*) reaffirm secular and urban sanctity of the "hidden servants" of God. Such saints now make the City "the abyss of miracles." The genre's relevance and strength in the ninth-tenth-century Constantinople is evidenced by the transmission of ancient collections (*Spiritual Meadow*) and the appearance of new narratives, and by the inclusion of edifying stories into the catechism for the Feast of Orthodoxy.

Jean-Luc FOURNET, *Les Égyptiens à la capitale ou Quand la papyrologie s'invite à Constantinople : édition comparée des P.Cair.Masp. I 67024-67025* p. 595

This contribution gives the edition of the drafts of a proposal for an imperial rescript that four Egyptians subjected in 551 in Constantinople to the imperial administration in the frame of the rescript procedure to help it to establish the definitive rescript. We are fortunate to have almost three versions of the same text (*P.Cair.Masp. I 67024* front and back and 67025), written by two different persons, one Egyptian, the other Constantinopolitan. The study of the differences between these versions makes us enter the process of drafting and allows us to apprehend very concretely, through the writings, the lexicon and the wording, the cultural profile of both of them.

Jean GASCOU, *Alexandrie chrétienne, légendes et réalités : à propos des confréries* p. 635

According to the Greek *Acts of Saint Mark*, his martyred corpse was embalmed and put in a grave by members of an Alexandrian brotherhood of Christian laymen. This finding suggests that the *Acts* were written after the late 5th century, when the Egyptian fraternities (*philoponoi*, *spoudaioi*) flourished. The *Acts of Mark* and other similar writings were probably produced by the brotherhoods themselves, which strongly supported the cults of relics, as a response to contemporary skepticism. We study some aspects of their activities, such as their funerary duties, and treat some related topics in appendices, namely the existence of brotherhoods at Antioch, the identity of Hypatia's murderers according to the Egyptian chronicler John of Nikiou, and the traces of the brotherhoods' criticism among monks and clergy.

Judith HERRIN, *Constantinople and the treatment of hostages, refugees and exiles during late antiquity* p. 739

In late antiquity the imperial court of Constantinople was the centre where many hostages, refugees and exiles sought the protection of the Byzantine emperors. Some often spent years in this privileged place of safety. As a tribute to Gilbert Dagron, I have brought together some of their stories in order to analyze the ways in which they were sheltered, educated and employed to further imperial political ambitions. From participating in the ceremonies of the imperial palace, the young, girls as well as boys, and the more elderly all gained a lasting impression of the power and status of the emperor, which they took with them if they got a chance to return to the lands of their birth. The Queen City thus found an additional method of spreading imperial propaganda in distant regions.

Sergey IVANOV, *Constantinople in the oldest versions of the Life of Basil the Younger* p. 169

The versions of the *Life of Basil the Younger* found in the Greek manuscript Athos Dionysiou 107 and in several copies of the *Life's* Slavic translation date back to early stages of the text's editing. These versions provide a lot of important data that disappeared at a later stage as reflected in the Moscow manuscript, which is reproduced in the Washington edition of 2014. Among other things, Amastrianon and Ox squares can now be located with more precision.

Michel KAPLAN, *Les moines de l'Athos et Constantinople des origines à 1204* p. 657

Among the many subjects drawn by the imperial capital were numerous monks, whose presence in the proto-Byzantine era was studied by Gilbert Dagron. This study focuses on the relations between the monks of the Holy Mountain of Athos and Constantinople, from the origins until 1204. The Athos monks visited the capital and the emperor exercised the role of patron of the Mountain's monasteries even before the foundation of the first two imperial monasteries, Lavra and Iviron. The emperor did not visit the Mountain in person, but dispatched officials for the delimitation of land, or monks from the imperial monasteries of Constantinople, such as the Stoudios, to establish rules (972, 1045). The higoumens and monks of the two imperial cenobitic monasteries closely linked to Constantinople often travelled to the capital, as did those from other monasteries. Income in the form of donations, pensions and tax exemptions, came from the capital. Constantinople was the empire's most important market and the monks, despite the prohibitions of 1045, took their boats to the city in order to trade in various goods, most dominant of which was wine. This study attempts to identify the main lines of these relations.

Johannes KODER, *Byzantion wird Konstantinupolis: Anmerkungen zu Ortswahl und Namen* p. 21

This paper aims to discuss briefly two aspects of the foundation and the early history of Constantinople. The first is the emperor's Constantine the Great decision-making regarding the location of his residence in the eastern part of the Roman Empire especially in the place of ancient Byzantium, a decision which obviously depended only to a lesser extent on economic preconditions or on religious reservations, but mainly on political and military considerations.

The second aspect relates to new names, as far as they are not only more or less adorning epithets. It can be demonstrated that since the reign of Heraclius (610–41)—and until now—*Polis* was in the Greek-speaking population an autonomous and unambiguous name without the need for additional explanations. It is also noteworthy that *Polis* probably did not derive from *Urbs* <Roma>, but directly from *Konstantinou-polis*.

Avshalom LANIADO, *L'aristocratie sénatoriale de Constantinople et la préfecture du prétoire d'Orient* p. 409

This article examines the social origins of the holders of the praetorian prefecture of the East, the most distinguished civil office in the early Byzantine Empire, from the reign of Constantius II (337–61) to the reign of Heraclius (610–41). With the notable exception of the reign of Arcadius (395–408), members of the hereditary aristocracy of the senate of Constantinople do not seem to have had a priority in holding this office. On the other hand, emperors often appointed to this position new men of various backgrounds. Evidence for praetorian prefects of the East is scanty after the middle of the 6th century, and this may suggest that the office as well as its holders lost some of their former prestige even before the reign of Heraclius.

Paul MAGDALINO, *Renaissances d'une capitale : l'urbanisme constantinopolitain des dynasties impériales* p. 55

Constantinople originated as a dynastic foundation, and it remained highly susceptible to dynastic change throughout its history. Each of the twelve dynasties that succeeded the house of Constantine from the fourth to the thirteenth century left its distinctive mark on the urban fabric of the imperial capital. This article considers the impact of three dynastic successions: the Theodosian (379–450), the Heraclian (610–711), and the Isaurian (717–802). Theodosius I and his successors oversaw and promoted a massive expansion of Constantinople to the west, which resulted effectively in the creation of a second city. After continued expansion in the fifth and sixth centuries, the Heraclian and Isaurian emperors faced the problem of managing a built environment that was largely surplus to the requirements and the resources of an empire fighting for survival. Heraclius and his descendants concentrated on developing a core area, the liminal zone between the City and the Palace, as an interactive theatre of power. The Isaurians continued to exploit the theatrical potential of the monumental city centre, while coping with a series of natural disasters. Although Constantine V (741–75) apparently did not repair the extensive earthquake damage of 740–1, he repopulated the city after the plague mortality of 747 and reconstructed the aqueduct after a long drought in 766. This enabled his daughter-in-law Eirene (780–802) to invest in a rebuilding programme that included a major palace-cum-commercial complex in the port area where Constantine V must have settled the immigrants from Greece and the islands.

Jean-Pierre MAHÉ, *Joseph, traducteur arménien à Constantinople au x^e siècle* p. 499

Gilbert Dagron noted that translators' bilingualism was often considered, in Constantinople, to be double-talk. Above all, when the interpreter was an Armenian, from a nation deemed as "ambiguous," "underground," and hopelessly heretical. Armenians were not intimidated by these complaints. In their view, translators were saints or heroes, that faced the hazards, trials and tribulations of travel in order to enrich the spiritual heritage of their nation. Armenian literature is abundant in accounts of their peregrinations. However, there were also sedentary translators, settled in the capital. Under Justinian, Armenians bought "one of the doors of Saint-Sophia," i.e. the merchants' district close to this door, and formed a community that needed managers, including, probably, translators. The Armenian alphabet was created in 405. The first translations in the liberal arts, grammar and philosophy, began in Constantinople in the 570s. One can grasp how the erudite, religious and political concerns closely intertwine, through two colophons of the translator Joseph, "born, taught and aged in Constantinople." The colophons date to 968, and 991, a period when the Byzantine reconquest on the eastern frontier created increasing tension.

Athanasios MARKOPOULOS, *Remarques sur les descriptions des empereurs byzantins dans l'historiographie, de Malalas à Léon le Diacre*

p. 299

The self-standing descriptions or portraits of Byzantine emperors, surviving mostly in chronicles, are often characterized by carefully selected vocabulary which embellishes the narrative. The inclusion of such descriptions in literary contexts goes back to the Hellenistic and Roman periods, when numerous works were aimed at producing a detailed study of the physical characteristics of a person. Thus, in the field of historiography, works by Dares, Sisyphos of Cos and Diktys of Crete gained a wide audience, presenting portraits of warriors of the Trojan war that found their way into the *Chronicle* of Malalas and other texts. These specific portraits should not be confused with the so-called *eikonismoi*, which tend to ascribe a timeless quality to the person described for the sake of aesthetic pleasure. Scholars are ambivalent towards the portraits found in Malalas, as it is uncertain if he actually utilized all the authors he mentioned or simply listed them and only employed a few or a single source. If there is such a source behind at least some of Malalas' *eikonismoi*, it continues to elude us. The tenth-century *Chronicle* of Pseudo-Symeon is of particular interest, as it contains portraits of nearly all Byzantine emperors from Constantine the Great (306–37) to Justinian II (685–95/705–11). The present article offers the first critical edition of three such portraits: of Constantine the Great, Tiberios I (578–82) and Herakleios (610–41). These descriptions may be drawn from a version of a lost historical text, called *Epitome* and attributed to Trajan the Patrician. The picture changes dramatically with Leo the Deacon, whose portraits are not typical *eikonismoi*. Instead, the author loosely conforms to the rules of rhetoric in an attempt to add a scalar effect to his descriptions. Rather than offering a single description for a person, Leo provides various references to it, which complement each other without sacrificing any of the text's dramatic essence. This is the great originality of Leo's portraits, which breathed a new life into the technique of *eikonismos*.

Jean-Marie MARTIN, *Un reflet de Constantinople : Bénévent au VIII^e siècle*

p. 757

During the 8th century the Byzantine influence was predominant in the Lombard duchy of Benevento, even before the duke took the title of *princeps* when the Lombard kingdom was conquered by Charlemagne. Its capital had a Mint and struck gold coins since the middle of the 7th century, a Palace in the 8th century. In the first quarter of the 8th century was built a monastery of St-Sophia *ad ponticellum*. At the time of Arichis II (758–87) the arch of Trajan, at the beginning of the *via Traiana*, was called *porta aurea*; Arichis founded the new monastery of St-Sophia, near the Palace, and translated relics in its church. The model of St-Sophia was, on one hand, the royal monastery of Brescia and, on the other, the patriarchal church of Constantinople.

Bernadette MARTIN-HISARD, *Grégoire Pakourianos, Constantinople et le typikon du monastère des Ibères de Pétritzos (déc. 1083). Le texte et le monastère*

p. 671

The monastery of Petritzos was founded in Byzantine territory by an Iberian, Domestic of the Schools Grigor Pakurianos. The main, practically the only, source on the monastery is its *Typikon*, established by the founder and produced, by his design, in two versions, Greek and Georgian. Although sometimes contradictory in their present state of transmission, they are equally useful, as shown by the analysis of the Inventory (*brebion*) in the first part of this study. Grigor's monastery, founded for Iberian people, earned him renown in the modern Georgian world, but, as we argue in the second part of this study, this foundation was conceived, in a probable agreement with the first higoumen, Grigor Vaneli, in a spirit of recognition of the *basileis* of Constantinople and of the imperial Church. Grigor Pakurianos, whose origin and career are studied here in detail, did not seem to consider himself as a foreigner in the multinational Byzantine Empire, but rather as "foreign-born."

Sophie MÉTIVIER, *Régner et commander : l'interprétation de Syméon le Nouveau Théologien* p. 383

Symeon the New Theologian kept close ties with the aristocratic milieu from which he came. What is more, he refers or alludes to it repeatedly in his writings to describe and to explain the monk's bond with God by comparing it to the emperor's relationship with his archons. We examine these rich and numerous mentions, which are inspired by realia, or even specific events of his time. They reveal that the political and social order of the Byzantine Empire was conceived by Symeon after the model of Pseudo-Dionysius' celestial and ecclesiastical hierarchy. Symeon asserts the position of the aristocracy without calling into question the primacy of the emperor, if only a relative one. Thus, the writings of this spiritual father provide us with a coherent and comprehensive vision of Byzantine power.

Robert OUSTERHOUT, *Aesthetics and politics in the architecture of Justinian* p. 103

The sixth century of Byzantium was a time when emperors could still make grand political statements through architecture, just as their predecessors had done in imperial Rome of the first and second centuries CE. A great building could reflect the character of its patron, something that figures into the architectural *ekphrasis* of both the Roman and Byzantine periods. Cassiodorus expressed it succinctly: "As is the house, so is the inhabitant." In this paper I shall explore several aspects of architectural design in the era of Justinian, and ask how we might read them in a political context. In this, I return to the sorts of issues Gilbert Dagron once addressed in his scholarship, but I do so with greater attention to the architecture itself, concluding with a short foray into inscriptions. I shall focus in particular on three very familiar Constantinopolitan buildings: Anicia Juliana's St. Polyeuktos, and Justinian's two surviving churches, Sts. Sergius and Bacchus and Hagia Sophia.

Vivien PRIGENT & Vera TCHENTSOVA, « *Quand la terre tremble* » : *catastrophe naturelle et propagande au XVIII^e siècle* p. 179

In June 1648, a powerful earthquake struck Ottoman Constantinople. News of the disaster reached Moscow through letters and oral reports of various churchmen and merchants. Their testimonies offer an interesting insight on the fate of Byzantine monuments, especially triumphal columns, even if identifying the monuments mentioned is sometime challenging. The discrepancies in the testimonies led us to scrutinize the origins of the information conveyed by these individuals to Moscow, as well as their identity. It was revealed that the individuals were not first-hand witnesses and were all closely linked. Furthermore, some confusions and errors appear deliberate. The witnesses made use of the patriographic memory surrounding the imperial monuments to stress the current weakness of the Ottoman state in order to incite the Tsar to fulfil ancient prophecies. This scheme must be understood in the context of the ongoing Cretan war as Venetians and their supporters inside the Oriental Church were desperately in search of new allies.

Cemal PULAK, *Yenikapı shipwrecks and Byzantine shipbuilding* p. 237

Thirty-seven Byzantine shipwrecks, dating from the 5th to 11th centuries AD, were discovered over the course of the excavation of Constantinople's Theodosian Harbor between 2004 and 2013. Of the 37 wrecks, six merchantmen (round ships) and two galleys (long ships) were documented, raised, and studied by a team of archaeologists from the Institute of Nautical Archaeology (INA) led by the author. Careful study of the Yenikapı Byzantine shipwrecks and 20 other Byzantine-period wrecks excavated in the Mediterranean dating between 4th and 11th centuries, has allowed for a detailed analysis of changes in ship construction in the second half of the 1st millennium AD. In total, 54 shipwrecks were reviewed focusing on three primary hull features: the framing system, the edge-joinery of the hull planking, and the cross-sectional shape of the hull amidships. The study provides insight into the conceptual and technological components of the transition from the earlier shell-based to the later frame-based methods of ship construction, revealing that this transition was not a singular episode but rather one that resulted from the culmination of multiple different changes that occurred during the period of study.

Catherine SALIOU, *Construire en capitale : la loi de Zénon sur la construction privée à Constantinople (CJ VIII, 10, 12), une relecture* p. 79

Emperor Zeno's law on private building in Constantinople is a unique source on urban law and a milestone in the history of Constantinople's urban space. The aim of this paper is to highlight its richness and interest by proposing a new overall interpretation, with a complete French translation based on a revised version of Krüger's edition in the *Justinian Code*.

Jonathan SHEPARD, *"Constantinople imaginaire" in northern and western eyes: the uses of imperial imagery to twelfth-century outsiders* p. 773

Constantinople, with all its imperial connotations, was among the subjects upon which Gilbert Dagron shone brilliant light. So, too, were the ways in which its antique monuments played upon the imagination of its medieval inhabitants. This paper considers a variant of these themes: the repercussions of the City and the cults and visual imagery associable with it upon external societies, at the level of established regimes and also of individuals and families who were intent on legitimising their status. Neither the fact of their doing so, nor the reasons, are especially obscure or indeed surprising. More noteworthy is the occurrence of the phenomenon in the twelfth century in widely-dispersed regions. Instances range from the papacy of Innocent II and his self-presentation in the apse mosaic in Santa Maria di Trastevere in Rome to Prince Andrei Bogoliubsky's devising of cults of icons and new feast-days in Vladimir-on-Kliazma. Attention is also drawn to the resonance of Byzantine, if not specifically imperial, imagery amongst ambitious Saxon and Danish notables. While this is in part attributable to the vigorous diplomacy conducted by Komnenian emperors and to their promotion of cults and icon-bearing processions in Constantinople, it also reflects upon their inability to prevent dilution of "the imperial brand" in emergent power-centres.

Dieter SIMON, *Eustathios Rhomaïos, kaiserlicher Richter im Konstantinopel des XI. Jahrhunderts und das Gesetz* p. 481

This article addresses the question of how the imperial court managed to deal with the great mass of valid legal rules which circulated in the eleventh century. The answer seems to lie in the unusual freedom which the judges arrogated to themselves in their treatment of the law. Despite their constant emphasis on the strict constraint enforced by the law of the *Basilica*, their method of interpretation and their mode of argumentation permitted them to find a rationale for every decision which corresponded to their sense of justice—and that with or without the backing of the law.

Constantin ZUCKERMAN, *Campaign blueprints of an emperor who never campaigned in person: Constantine VII's treatises on imperial expeditions and De cer. II, 45 (with special regard to the theme of Charpezikion)* p. 341

The treatises on imperial military expeditions, re-edited by John Haldon as (A), (B), and (C), were copied in the same Leipzig manuscript as the *Book of ceremonies*, ahead of the major compendium. This little corpus represents the only element in the *Lipsiensis* external to the *Book of ceremonies*. Haldon presents (A), a short prefatory list of camps, as a series of Constantine VII's stray notes haphazardly put together by a later editor, rather than a structured text. He attributes (B) to Leo Katakylas, a senior officer of Basil I. I argue that the entire corpus was authored by Constantine, and that its three parts, together, deliver his vision of emperor's military function. Chapter II, 45 of the *Book of ceremonies* contains a collection of documents related to Emperor Constantine VII's failed Cretan campaign of 949. This dossier was composed by imperial command and with the emperor's authorial input, but it did not take a coherent form. The campaign organization was a mess and the documentary file was abandoned by its imperial sponsor after he learned of the expedition's failure. This file will be exploited as a monument of Constantine VII's military thought, or rather its limits, as well as for its data, confused yet fairly complete, on the manpower employed in the campaign. Chapter II, 45 also provides insights into the empire's military structures. Thus, a close examination of data for Charpezikion, traditionally a paradigm for studying the *armeniaka themata*, throws a new light on this crucial tenth-century phenomenon. The number of Charpezikion troops was not reduced to the extent many believe. The question of their origin is also posed anew to gain a revised view of Byzantium's moving eastern frontier and the transformation of the *themata*-system in the mid-tenth century.

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